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VOL. XVIII. NO. 9.

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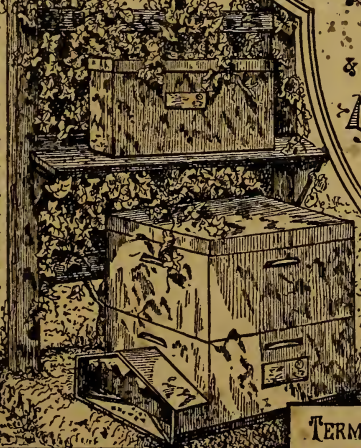
PEACE ON EARTH
GOOD WILL TOWARD MEN



THE A N I M A L IN BEE CULTURE

DEVOTED
TO
BEE-KEEPING

& HOME INTERESTS.
MEDINA, OHIO
BY
A. J. ROOPE



TERMS, ONE DOLLAR PER YEAR.

FRANKLIN, DUNELAND, & CO.

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

GLEANINGS IN BEE CULTURE.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.

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No additional discount for electrotype advertisements.

A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—

With the American Bee-Journal, W'y	(\$1.00)	\$1.75
With the Canadian Bee Journal, W'y	(75)	1.65
With the Bee Hive,	(30)	1.20
With the Bee-Keepers' Review,	(50)	1.40
With the British Bee-Journal,	(1.50)	2.40
With all of the above journals,		5.40
With American Apiculturist,	(75)	1.70
With Bee-Keepers' Advance and Poultryman's Journal,	(50)	1.45

With American Agriculturist,	(\$1.50)	2.25
With American Garden,	(2.00)	2.60
With Prairie Farmer,	(1.50)	2.35
With Rural New-Yorker,	(2.00)	2.90
With Farm Journal,	(50)	1.20
With Scientific American,	(3.00)	3.75
With Ohio Farmer,	(1.00)	1.90
With Popular Gardening,	(1.00)	1.85
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(1.50)	1.75
With Drainage and Farm Journal,	(1.00)	1.75
With Illustrated Home Journal,	(1.00)	1.75
With Orchard and Garden,	(50)	1.40
With Cosmopolitan, (new sub. to Cos.)	(2.40)	2.40

[Above Rates include all Postage in U. S. and Canada.]

BEES SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address 16tfdb **BEE JOURNAL, Chicago, Ill.**

ITALIAN EARLY QUEENS

3	Untested queen, April	\$1.00.	May,	\$1.00.
3	"	3.00.	"	2.50.
1	Tested	2.00.	"	2.00.

Special discounts to dealers. Safe arrival guaranteed.

W. J. ELLISON,

7-8-9d Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb **CHAS. DADANT & SON, Hamilton, Hancock Co., Illinois.**

In responding to this advertisement mention GLEANINGS.

Names of responsible parties will be inserted any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. 1st. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.

*H. H. Brown, Light Street, Col. Co., Pa. 7tfdd90

*Paul L. Viallon, Bayou Goula, La. 7tfdd90

*S. F. Newman, Norwalk, Huron Co., O. 7tfdd90

*Jos. Byrne, Ward's Creek, East Baton Rouge

7tfdd90 Par., La.

C. C. Vaughn, Columbia, Tenn. 9tfdd90

Wm. L. Ashe, Edwardsville, Mad. Co., Ill. 9tfdd90

J. M. Jenkins, Wetumpka, Ala. 9tfdd90

*Oliver Hoover & Co., Snyderstown, Northum-

17tfdd90 berland Co., Pa.

Abbott L. Swinson, Goldsboro, Wayne Co., N. C. 7tfdd90

C. R. Mitchell, Birmingham, Jeff. Co., Ala. 9tfdd89

N. A. Knapp, Rochester, Lorain Co., O. 15tfdd89

J. J. Hardy, Lavonia, Franklin Co., Ga. 9d

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.

P. L. Viallon, Bayou Goula, Iberville Par., La 7tfdd90

C. W. Costellow, Waterboro, York Co., Me. 7tfdd90

R. B. Leahy, Higginsville, Laf. Co., Mo. 9tfdd90

J. M. Jenkins, Wetumpka, Ala. 9tfdd90

W. T. Falconer Mfg. Co., Jamestown, N. Y. 7tfdd

F. C. Erkel, La Sueur, La Sueur Co., Minn. 7-9-11d

Pure Italian Queens.

We will sell pure Italian queen bees, bred from pure mothers, by April 1. Tested, \$1.00; untested, 50c; two-frame nuclei and tested queen, \$2.00, or untested, \$1.50.

I. GOOD & STEWART BROS., Sparta, White Co., Tenn.

In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION MILLS.

Made by W. C. PELHAM,

7-8-9d Maysville, Ky.

In responding to this advertisement mention GLEANINGS.

SEND your address on postal card, for my circular of thoroughbred poultry. E. J. KENNEDY,

7-8-9d Troy, Pa.

L. Wyandott—EGGS—W. Leghorn. Thirteen for \$1.00. 7tfdd

P. BROWER, New Paris, Elkhart Co., Ind.

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"VALLEY-FARM APIARY."

Will sell 30 colonies of Hybrid and Italian bees, in Simplicity hives. To be shipped early in May, 1890. Many of the queens were bred from Mr. Doolittle's \$4.00 tested queen. Address

G. WIDERSHOLD, YONKERS, N. Y. Opp. Dunwoodie Station.

Please mention this paper.

Queens Ready to Mail

now, and we guarantee safe arrival in any kind of weather. Italian queens, tested, \$2.00; untested, \$1.00; 3 untested, \$2.75. Send for dozen rates. Two-frame nuclei with untested queen, \$2.50; \$26.00 per dozen in April. Make money orders payable at Clifton. Send for price list to 5tfdb

COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.

Please mention this paper.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY, 55 Mechanic St., Westfield, Mass. Please mention this paper.

BROWN LEGHORNS STILL AHEAD. EGGS, \$1.00 PER 13, \$1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn. 7tfdb



☞ In responding to this advertisement mention GLEANINGS.

\$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for \$25.00.

In Simplicity or L. 10-frame hives; 250 colonies to 4-9db draw from. Address

JNO. A. TACENTON, LIMA, ADAMS CO., ILLINOIS.

Please mention this paper.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD, 4-9db

BIRMINGHAM, JEFF. CO., ALA.

Please mention this paper.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio; Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Clarkworth Mfg. Co., Rock Falls, Ill.; **E. L. Gould & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hansen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., and numerous other dealers.

LANGSTROTH on the HONEY-BEE, REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to 4tfdb

CHAS. DADANT & SON, HAMILTON, HANCOCK CO., ILLINOIS.

☞ In responding to this advertisement mention GLEANINGS.

THREE-FRAME NUCLEI,

with queen, \$2.25 each, or two for \$4.00. Orders booked now for delivery after May 15. Safe arrival guaranteed. Frames, 12¼x9½. H. L. FISHER, 8-9-10d

Milford, Kosciusko Co., Ind.

☞ In responding to this advertisement mention GLEANINGS.

50 COLONIES OF ITALIAN BEES for sale, in Langstroth hives, at \$5.00 per colony. 8-9-10d JOHN GRANT, Batavia, Clermont Co., Ohio.

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for \$3.50. Imported queens, \$4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO., 21-20db NEW LONDON, Waupaca Co., WIS.

☞ In responding to this advertisement mention GLEANINGS.

TESTED CARNIOLAN QUEENS, \$2.50 each; untested, \$1, or 6 for \$5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

VIRGIN QUEENS.

Pure Virgin queens at 50 cts. each, or 40 cts. each per 100. J. B. LAMONTAGUE, Winter Park, Fla. 8-9-10d

UNTESTED ITALIAN QUEENS AT \$1, and 4-frame nuclei at \$3.50, after May 1st. Send in orders now. 4-10db

S. J. WAKEFIELD, Autreville, S. C.

FOR SALE - - BEES.

Good colonies in shipping-cases, with 9 Langstroth frames. Italians, \$4.50. Hybrids, \$3.50, delivered at railroad station any time after May 1. 8tfdb MISS MABEL FENN, Tallmadge, Ohio.

☞ In responding to this advertisement mention GLEANINGS.

SECTIONS.

\$2.50 to \$3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO., 6tfdb Rock Falls, Illinois.**

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 6 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange a 6 x 9 self-inking press, with type, for a Barnes foot-power circular saw, and a 2-foot telescope, for 4-inch foundation rolls, or offers. L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase. 3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation. 1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application. 5tfdb Avery's Island Apiary, Avery, La.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange one Green's solar wax-extractor, new, for an incubator or Italian queens. 6tfdb G. C. HUGHES, Pipestem, West Va.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange Ohio Valley wire and picket fence machines for bees and bee-supplies. Circulars free. JAS. M. MANGOLD & BRO., Moundsville, Marshall Co., W. Va.

WANTED.—To exchange a general-utility hand-cart, good as new. Write for particulars. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

WANTED.—To exchange 15 to 20 colonies of bees, mostly bright Italians, in Heddon 8-frame L. hives, for salable bee-supplies, especially foundation or machinery for the same, or engine. ROB. RIECKEN, 261 W. Fulton St., Grand Rapids, Mich.

WANTED.—To exchange one set buggy harness, worth \$10.00, for Langstroth or Simplicity bee-hives. JNO. GRANT, Batavia, Clermont Co., O. 8-9-10d

WANTED.—To exchange fruit-trees, strawberry, red-raspberry plants and sewing-machines, for bees and honey. E. PETERMAN, Waldo, Wis. 8-8d

WANTED.—To exchange comb foundation for beeswax. Samples on application. 8-11db J. P. CONNELL, Hillsboro, Texas.

WANTED.—Hybrid Italian queens; will pay 20 cts. 9tfdb GEO. H. GRACE, Perry, Iowa.

WANTED.—100 black and hybrid queens, 20 cts., for which I will exchange extracted honey at 7 cts. No cross desired, except Italian and black. If you have any to spare, correspond with 8-9d A. J. NORRIS, Cedar Falls, Ia.

WANTED.—To exchange for sections, fdn., honey, or offers, an American fruit-evaporator, No. 2; capacity, 10 to 12 bu. apples per day. For description of evaporator, write to American Mfg. Co., Waynesboro, Pa. O. H. HYATT, 9tfdb Shenandoah, Ia.

WANTED.—To exchange Italian queens for honey-extractor, either new or second hand. 9d H. G. CAMP, Winona, Col. Co., O.

WANTED.—To exchange milkshake, good as new; cost twenty dollars, for any thing useful in an apiary. J. F. MICHAEL, 9d German, Darke Co., O.

WANTED.—To exchange a 4-in. foundation-mill, good as new, for a 6-in. mill. WILBER G. FISH, Ithaca, N. Y. 9d

WANTED.—A smart boy, 14 to 18 years of age, to work in apiary; some previous experience necessary. W. D. WRIGHT, Altamont, N. Y. 9d

Black and Hybrid Queens For Sale.

Black queens, 3 for one dollar; also a few hybrids. 5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

WANTED.—Hybrid Italian queens; will pay 20 cts. 9tfdb GEO. H. GRACE, Perry, Iowa.

About 50 queens to mail in May and June; blacks, 25c; mismatched Italian and Carniolans, 50c. E. F. QUIGLEY, Unionville, Mo.

Ten or twelve mismatched queens; three for \$1.00. Send quick before I pinch off their heads. A. L. KILDOW & BRO., Sheffield, Ill.

Two black and 6 fine prolific hybrid queens for sale. Any one sending 25c each, and ready-provisioned cage, can have them in May. T. K. MASSIE, Concord Church, Mercer Co., V. Wa.

Sixteen black queens at 25c each; ready now. W. P. W. DUKE, Nettleborough, Clarke Co., Ala.

Forty black and hybrid queens at 40c each. W. STYAN & SON, San Mateo, Cal.

About 20 hybrid queens from pure mothers, at 40 cts. each. Purchasers need not send money until they receive the queens, as my stock might be exhausted. B. F. CATHEY, Cabot, Lonoke Co., Ark.

Can furnish good hybrid queens from first-class stock the entire season, for 50c each. Also have 4 black queens, will ship for \$1.00, or 35c each. J. C. KING, Fort Deposit, Lowndes Co., Ala.

30 COLONIES BEES FOR SALE

In new 8-frame L. hives, at \$3.00 per colony. H. C. GILSON, - BURR OAK, - MICHIGAN. In writing advertisers please mention this paper.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones**. Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, before June 15, \$1.25; after June 15, \$1.00. Tested (3 bands), \$2.00; selected, tested (4 bands), \$3.00; breeding queens (4 to 5 bands), \$5.00. Virgin queens, 50 cts.; 5 for \$2.00. Safe arrival and satisfaction guaranteed. JACOB T. TIMPE, Grand Ledge, Mich. 8-15db

In responding to this advertisement mention GLEANINGS.

LET US HAVE FAIR PLAY,

is all we ask. We know you will like our Carniolan bees, because we breed from **Pure Imported Stock**. Queens, \$1.00 in June. Give them a **Fair Trial**. Send for printed matter free. Safe arrival. Address E. L. PRATT, 8-11db Pratt Bee-Farm, Marlboro, Mass.

In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey*.—We have a very few cases of clover in stock. Buckwheat, all sold. Extracted now selling rather slow. Prices unchanged from last quotations
C. MCCULLOCH & Co.,
Apr. 21. 339 Broadway, Albany, N. Y.

NEW YORK.—*Honey*.—No change in the honey market. Price low, with little demand. Market pretty well cleaned up.

THURBER, WHYLAND & Co.,
Apr. 19. New York.

DETROIT.—*Honey*.—Comb honey is selling at 10@13; extracted, 7@8. *Beeswax*, firm at 27.

M. H. HUNT,
Apr. 19. Bell Branch, Mich.

ST. LOUIS.—*Honey*.—We quote a quiet market. Choice white-clover comb, 13@14; dark comb, 9@10; extracted, cans, 6@8; choice bright, in barrels, 5@5½; dark, 4½@5. Prime *beeswax*, 27.

D. G. TUTT GROCER Co.,
Apr. 21. St. Louis, Mo.

NEW YORK.—*Honey*.—Honey in the comb, all sold. Extracted is in fair demand. We quote: 6@8, according to quality. Southern, 75@80, and Cuban, 78@80 per gallon. *Beeswax* is very scarce; domestic, 26@27; Cuban, light, 28@29. Dark, 25@26.

F. G. STROHMEYER & Co.,
Apr. 18. New York.

BOSTON.—*Honey*.—Market well cleaned up on all fancy one-pound comb honey. Market strong at 16 cts. A little two-pound honey on hand, selling at 15 cts. Extracted, 8 to 9. No *beeswax* on hand. Nothing off grade in any way can be sold here.

BLAKE & RIPLEY,
Apr. 19. 57 Chatham St., Boston, Mass

KANSAS CITY.—*Honey*.—Market cleaned up on comb honey; demand good. We quote white, 1-lb. comb, 14; dark, 1-lb. comb, 10@12; white, 2-lb. comb, 13; dark, 2-lb., 10@11; extracted very slow sale; 5@7. *Beeswax*, none in market.

CLEMONS, CLOON & Co.,
Apr. 23. Cor. Fourth and Walnut Sts., Kansas City, Mo.

SAN FRANCISCO.—*Honey*.—Honey quiet, in anticipation of the new crop. Quote, 5½@6½. Comb honey, 10@14. *Beeswax*, 22@24.

SCHACHT, LEMCKE & STEINER,
Apr. 21. 16 & 18 Drum St., San Francisco, Cal.

FOR SALE.—*Honey*. Good grade. Correspondence solicited.
W. A. & E. E. MONTGOMERY,
Pickens, Holmes Co., Miss.

PRICE LISTS RECEIVED.

We have received circulars from the following parties:

J. H. M. McCook, 78 Barclay St., New York.
John Nebel & Son, High Hill, Mo. Printed here.
E. D. Keeney, Arcade, N. Y.
J. I. Parent, Birchton, N. Y.
J. R. Barnhard, Ottawa, Kan.
G. L. Tinker, New Philadelphia, O.
C. P. Bish, Grove City, Pa.
Mark Hurd, Marshall, Mich. Poultry.
T. A. Inghram, Waynesburg, Pa.
Schlichter Bros., Brown City, Mich.
I. D. Lewis & Son, Hiawatha, Kan.
F. A. Salisbury, Geddes, N. Y.

CONVENTION NOTICES.

The Capital Bee-keepers' Association will meet in the Supervisor's Room of the Court-house, Springfield, Ill., May 7, 1890, at 10 A.M. All interested are invited. C. E. YOCUM, Sec'y.

The next annual meeting of the York and Cumberland Bee-keepers' Association will be held in Grange Hall, Buxton Center, May 10. Sessions at 9 A.M. and 2 P.M. An interesting programme is assured. A cordial invitation is extended to all interested. C. W. COSTELLO, Sec'y.
Waterboro, Me.

The Cortland Union Bee-keepers' Association will hold its annual meeting at the W. C. T. U. rooms, in Cortland, N. Y., on Tuesday, May 13, 1890, at 10 A.M. M. H. FAIRBANKS, Sec'y.

Vegetable and Berry Plants for May.

The demand has been so very good that there is not a thing we are prepared to offer at a bargain unless it is Sharpless strawberries, and we have some of the finest on our creek-bottom ground that I ever saw or heard of; and in order to cut paths we shall have to take out several thousand; therefore if ordered at once we will furnish them at 30 cts. per 100, or \$2.50 per 1000. The plants are so exceedingly large and thrifty that the postage will be 30 cts. per 100 instead of 20. We also have several hundred very fine plants of Thompson's Early Prolific raspberries. These are listed at \$2.50 a dozen. We will furnish them while they last, for just half the above price. If wanted by mail, add half a cent each additional for postage. Turner and Cuthbert raspberry-plants can be furnished for \$1.00 per 100 if ordered within the next 15 days.

P. S.—Also extra-fine seedling celery-plants (not transplanted) \$1.50 per 1000. By mail, 15c per 1000 extra.
A. I. ROOT, Medina, O.

MUTH'S HONEY - EXTRACTOR, SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY- SECTIONS, &c., &c. PERFECTION COLD - BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." Mention *Gleanings*. ItfdB

APIARY FOR SALE

At \$5.00 per colony. Tested Carniolan queens, \$1.00 each; tested Italian queens, \$1.00. Also R. C. B. Leghorn eggs, \$1.00 per 13; prize-winning stock.

Address S. F. REED, N. Dorchester, N. H.
In writing to advertisers please mention this paper.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS AS AN ADVERTISING MEDIUM.

Just mailed you a postal ordering my ad. in Exchange department stopped. It has brought about a bushel of answers. L. J. TRIFF.
Kalamazoo, Mich., April 12, 1890.

OUR GARDEN SEEDS.

The seeds sent me about 10 days ago came to hand in good condition. Knowing the value of an unsolicited testimonial, I desire to let you know that they were as fine a lot as I have ever seen—in fact, the finest and cheapest too. I have bought seeds from several of the prominent seedsmen of the country during the last ten years, but I have never had seeds come up so quickly nor so regularly. I think I can get many a customer for you here, where market-gardening is so vigorously carried on. JOHN ASPINWALL.

Eau Gallie, Fla., March 23, 1890.

A KIND WORD FOR PROF. COOK.

Prof. Cook:—Perhaps I am taking a great liberty by writing to you; but I have received great benefit from studying your *Manual of the Apiary*, and have been very successful, so that I raise from nine to twelve thousand pounds of honey per year, and have bought a property with a maple-sugar orchard on it; and seeing your name to a piece in my paper, on the way to manage a sugar orchard, I thought that you would be the best person to get information from to manage one in the best way. Is there a book published on the subject? or if there is not, would it not be a good idea for you to publish a pamphlet on the subject? GEORGE HARRIS.
Dungannon, Ont., Can., April 12.

The Bristol Hive,

AND ALL KINDS OF BEE-KEEPERS' SUPPLIES MANUFACTURED AT REDUCED PRICES.

The Poplar Four-Piece Sections a Specialty.

PRICE LIST FREE ON APPLICATION.

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BEEES**



Carniolan queens and bees a specialty. Seven years' experience with those bees satisfies me of their superiority. They are unexcelled in gentleness, hardiness, and prolificness, as comb-builders and honey-gatherers. Write for circular and price list. Address **A. L. LINDLEY,**

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Carniolan * Bees.

PLEASANTEST BEES IN THE WORLD.
BEST HONEY-GATHERERS.
HARDIEST TO WINTER.

IN ORDER TO INTRODUCE NOT ONLY THE
BEEES, BUT OUR PAPER,

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We offer to any one who will send us \$1.25, a copy of our paper and a nice Carniolan queen. The queen alone is worth \$2.00. Address

THE ADVANCE, Mechanic Falls, Me.

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Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May, - \$1.50; in June, - \$1.25
Unt'd " " - 1.00; 3 for - 2.50
" " " June, - 75; 3 for - 2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.

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Mention this paper.

J. W. K. SHAW & CO.,

LOREAUVILLE, IBERIA PARISH, LOUISIANA.

Tested Queens, imported mothers, fall rearing, light, Milamo strain. Reared in full colonies, at \$1.50 each. Untested, in May, \$1.00 each. All drone bees are from imported queens. Money orders on New Iberia, La. 9d

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A BARGAIN. I will mail you a tuber of **Cinnamon Vine**, which grows up rapidly, and early covers an arbor or trellis; a pkt. of **Powell's**, the most productive and excellent pole bean ever introduced; of **Honey Sweet Corn**; and 10 eyes of either **Foraker** or **Fernaught** (choice new) potatoes, all for only 15c. This liberal offer because of a surplus, and as an inducement for a trial order, entitling you to free catalog. Order at once, and I will send an extra pkt. Show this offer. Ten collections for \$1.25.

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9d

Please mention this paper.

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FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at \$3.75. In lots of 5, at \$3.50 each. Untested queens, at \$9.00 per dozen in June; \$8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.

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Send for Descriptive Circular to

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STOUT'S **AUTOMATIC SWARM CONTROLLER**
Price 60c. For particulars, send for circular.
LEMUEL STOUT, 1215 Market St., Philadelphia.

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Has the finest of Bronze Turkey eggs for sale at \$2.00 per 10. Langshan and P. Rock eggs at \$1.50 per 15. Stock unexcelled. Safe arrival guaranteed.

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TESTED ITALIAN QUEENS

NOW READY AT \$1. each; untested, 75 cts.; ready by return mail. Bees by the pound, 75c. Also nuclei. See GLEANINGS, March and April. Discount to dealers.

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Please mention this paper.

Bee-Keepers' Supplies.

WHY * SEND * LONG * DISTANCES ?

SEND NAME ON POSTAL CARD FOR MY

NEW PRICE LIST TO

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Formerly of St. Joe Sta., Butler Co., Pa.

ESTABLISHED IN 1884.

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The Georgia Bee & Honey Co.

Has 100 colonies of Italian bees for sale. \$3.50 each, or \$3.00 taking the lot. Queens included.

Address **W. A. PROFFITT, Hartwell, Hart Co., Ga.**

Please mention this paper.

FOR SALE.—1 dozen tested Italian queens over from 1889. Each, \$1.25; six, \$7.00; 1 doz., \$12.00.

9d

S. P. RODDY, Mechanicstown, Md.

IF YOU ARE IN WANT OF BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. Snyderstown, Pa.

LOST! The old prices on Bee-Hives, and new ones found. Send for circular—FREE.
9tfdb **L. J. TRIPP, Kalamazoo, Mich.**
Please mention this paper.

Italian Bees and Queens.

Tested queens, \$1.50; untested, \$1.00. Bees, per lb., \$1.00. Frame of brood, 50c; 3-frame nucleus, containing 2½ lbs. bees, 2 L. frames of brood, and tested queen, \$4.50. Queens reared from imported mothers. Send for price list.

9-10d **MRS. A. M. KNEELAND (nee Taylor),**
Box 77, Mulberry Grove, Bond Co., Ill.
Please mention this paper.

PURE HOME - GROWN GERMAN MILLET SEED.

Sacks included at \$1.10 per bushel. All kinds of Bee Supplies on hand.
9tfdb **T. A. GUNN,**
Tullahoma, Tenn.
Mention this paper.

SEND to E. J. Shay, Thornton, Taylor Co., W. Va., for SIMPLICITY HIVES, Frames, etc., both in the flat and set up. 8d

50 COLONIES OF ITALIAN and HYBRID BEES for sale at \$3.50 per colony, in shipping-boxes, L. frames. Also eggs from W. Wyandottes, W. Minorcas, and Pekin Ducks. Eggs, \$1.00 per 13.
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FOR SALE -- ENGINE and BOILER.

A five-horse-power upright engine and boiler, with both injector and pump, whistle, blower, glass oilers, and every part complete, in perfect working order, and nearly new; cost \$285.00, will sell for \$150.00.
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LOOK! Italian Queens, 20c to \$1.

Tested, \$1; untested, 50c; virgins, 20c. Safely delivered by F. C. MORROW, Wallaceburg, Ark.
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Please mention this paper.

Japanese Buckwheat. See G. B. Talcott's adv't in GLEANINGS, April 1.

That Hundred-Dollar Queen.

\$1 will purchase a daughter of this wonderful queen. Descriptive circular free. Address
9tfdb **AM. APICULTURIST, Wenham, Mass.**
Please mention this paper.

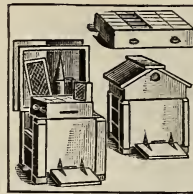
TESTED ITALIAN QUEENS, \$2. Untested, from imported mother, \$1. Bees, per lb., \$1.00. Hybrids, 70c. Nuclei, 35c per frame. Address
9d **J. J. HARDY, Lavonia, Ga.**

ITALIAN QUEENS FOR 1890.

Tested, \$1.00; untested, 75c. White Mallard Duck eggs, 75c per doz. Brown S. C. Leghorn eggs, 75c per 13.
9d **C. C. KIRKMAN,**
Redalia, Pitt Co., N. C.
Please mention this paper.

→*CHENANGO VALLEY APIARY.*←

Please give me your or—Two - frame nucleus, ders, and try my fine yel- with queen, in June, \$2. low Italian queens; are Tested queen, \$1.50; un- from imported stock, Tested, \$1.00. 8tfdb well known to my cus- MRS. OLIVER COLE, tomers. Send for circular Sherburne, Che. Co., N. Y.
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HILTON'S Improved Chaff Hive

AND T SUPER.

The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.

5-10db **CEO. E. HILTON,**
Fremont, Mich.

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SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

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SECTIONS, \$3 PER 1000. Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST.
9tfdb **M. H. HUNT, Bell Branch, Mich.**
Please mention GLEANINGS.



Eaton's Improved SECTION CASE. BEES AND QUEENS. Send for free catalogue. Address
2-13db **FRANK A. EATON,**
Bluffton, Ohio.

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THE CANADIAN

Bee Journal

Edited by D. A. Jones.

75c. Per Year.

Poultry Journal

Edited by W. C. G. Peter.

75c. Per Year.

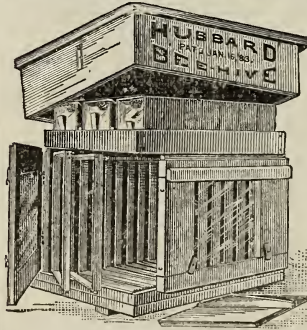
These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address \$1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ltd., Beeton, Ont.

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6-11db

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

H. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED. 10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.
Please mention GLEANINGS. 8-131b



Vol. XVIII.

MAY 1, 1890.

No. 9.

TERMS: \$1.00 PER ANNUM IN ADVANCE;
2 Copies for \$1.90; 5 for \$2.75; 5 for \$4.00;
10 or more, 75 cts. each. Single num-
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FASTENING HIVES TOGETHER FOR HAULING.

SOMETHING VALUABLE FROM J. A. GREEN.

I HAVE tried the plan given by Ernest, and I must say it is cheap, simple, and, for the time, effective. But two objections present themselves to my mind—one of them a very serious one. First, when used over a wire-cloth screen it will not permit of the cover being put on so as to make the top of the hive tight. With my method, the hives can be fastened together a week in advance, if necessary, all ready to start as soon as the entrances are closed.

Second, if you have your hives fastened up over night ready for an early start in the morning, and it rains during the night, your fastenings are unreliable until they have been dried. Or suppose, while you are on the way with a load of bees, a smart shower comes up, followed by bright sunshine. Your twine fastenings will begin to loosen as soon as the rain is over, and will continue to stretch and loosen until they are perfectly dry, when you will find that the cover can be lifted half an inch from the hive before they will tighten. In other words, they would be no fastening at all unless you tightened them every few minutes until dry. You think my nail-heads will not stand the strain. Well, now, prepare a hive as I direct; and if the nail-heads (8d common, wire) will not stand twice the strain that your twine loops will, I will take back all I have said against your method.

SHIPPING-CASES, AND SHIPPING COMB HONEY.

There was a time when nearly all comb honey was shipped in large cases, weighing 40 lbs. or more, the sections being usually two tiers high. Leaving out of the question, for the present, the matter of size, such cases had serious defects. In the first

place they were so nearly square that inexperienced persons in handling them often placed them so that the combs ran horizontally instead of vertically. Usually this was due to carelessness; but I have known it to be done purposely, from the belief that that was the proper way.

In time, our cases were cut down to one tier high, and then we were told that another reduction in size was advisable, and the case holding a dozen sections appeared. This captured the bee-keeper's heart, so that, in some of our markets, this size of case leads all others. Its real advantages combined with its novelty to give it a run that I think it hardly deserves. After shipping a great deal of honey in these cases I concluded that their advantages had been over-estimated. All the commission men I talked with agreed with me that they were too small. Few persons ever buy that much honey at one time for their own eating, and those that do will take a larger case just about as readily. Many dealers buy only one case of honey at a time. They want to "just try it to see how it goes," or, they "don't want too much on hand at one time," but they will take a 20-lb. case just as readily as a 10-lb., especially if the latter is not in sight. When that is gone, perhaps they will get another at once; but more often they will wait awhile, and perhaps put it off altogether. In the aggregate this means that a great deal less honey is disposed of than would be otherwise.

When honey in these cases was broken (and few cases of honey ever reach the consumer's hands without more or less breakage and leakage), the honey from the upper tier ran down over the lower sections, thereby injuring them greatly. I have met merchants who declared they would never handle another pound of honey, because it was always a dauby, sticky mess. Unless the sections fit-

ted tightly in the case, the upper tier had altogether too much freedom of motion.

I do not believe that the 10-lb. case will ship as safely, on an average, as one a little heavier. I always help the railroad men load my honey, and I notice that they always take two and often three and four of these small cases at a load, where they have to carry them. Of course, they are more liable to drop one of them than if they had only one or two larger ones. Judging from what I have seen of other goods, I believe freight-handlers often "form a line" and toss these small packages from one to another. This is the most expeditious way of handling light articles, when circumstances admit of it, and they become very expert at it, seldom dropping any thing; but it is not necessary for a case of honey to fall to the ground to break the combs. These small cases are much more liable to be loaded in a tall pile, which will topple over from the repeated bumping of a freight train. Of course, when they are properly loaded and unloaded by men accustomed to handling honey, these objections disappear.

I have found it an advantage in shipping these small cases to fasten two or three of them together by nailing strips across the sides. This makes a package that is not likely to be loaded any way but right side up. It is not too heavy for one to handle safely, but it is too heavy for two to be handled easily.

But the style of packing that gives the best results, suits my customers best, and calls down the praises of the railroad men, is a crate made to hold eight of the 10-lb. cases. This is made with skeleton sides and ends, with projecting handles to carry it by, and is deep enough to allow an inch and a half of hay, leaves, excelsior, or other elastic packing material, under the cases. I have shipped a great deal of honey crated in this way the past winter, and I have not heard of a single broken comb. Instead, the consignees have nearly always mentioned the perfect order in which the honey was received.

Not the least of the advantages of this method is, that the cases are not soiled in shipment. In these days, when appearance counts for so much, this is a big item. Most of my comb honey the past season was sold to bee-keepers who had none of their own, or not enough to supply their trade. Of course they didn't want to sell honey that had evidently taken a railroad journey (!), so they appreciated the advantages of this style of packing.

These crates add something to the cost of the honey; but where it is to be shipped in small lots, or loaded or unloaded by men not accustomed to handling honey, I believe they pay well.

In shipping comb honey it is very important that the combs run parallel with the rails, as on a railroad the jar is all endwise; while in hauling on a wagon they should run crosswise of the wagon, as in that case it is the rocking, sidewise motion that is to be guarded against.

I now use, on all shipments of comb honey, caution labels, a sample of which I inclose. Very many, I know, will not pay much attention to such things; but if the warning is printed in large bold type, brief and pointed, so as to be easily read and comprehended, most persons will read and follow it.

Dayton, Ill., Apr. 10.

J. A. GREEN.

Thanks for your suggestion, friend Green, in regard to the cord method of fastening

hives; but it seems to me your objections are not so very serious after all. 1. We have no trouble about fastening the wire screens down, and I hardly see why you should. 2. In regard to the loops stretching under the influence of the weather, what you say may be true with *ordinary* cords. But if you use *tarred* twine, the stretching you speak of can not very well take place. I spoke of the jute twine because we had used it and liked it very well. We have also used the tarred twine, and in practical use I saw but little difference in favor of either, except that the jute is larger, and I thought it stronger, and hence better to recommend to readers in general. But from what you say, I should *now* say, use the tarred twine. I should still prefer the loop method, even if the cords would stretch. There is less toggery, no nails to catch clothing, and a ball of twine is the whole expense. If I could not readily obtain the tarred article, and found by experience that ordinary twine would be affected by rain or dew in the night, I would not put them on until the morning. Half an hour would securely fasten 50 colonies if the twines were cut the proper lengths previously; and if I desired to make an early start, as soon as I got up I would give the horse his oats; and while he is eating I would fasten on the twines; my breakfast I would eat on the road. Yes, sir, I think your method of fastening is good; and perhaps better than what we used; but then I thought the loop method I described was more available to most bee-keepers. E. R.

We are exceedingly obliged to you for your hints in regard to shipping honey. It seems to us that this is one of the vital matters connected with our business. I have been slowly coming to the conclusion that we want our honey in small packages, and, furthermore, that these small packages should be crated in one large package. This prevents the tumbling-over trouble, and keeps them clean, and facilitates handling, without soiling or damage, at least to a great extent. I wish you would give a photograph or sketch one of these eight 10-lb. cases. We give to our readers below a reduced copy of friend Green's caution label.

FRAGILE.
HANDLE WITH CARE.

LOAD WITH HAND POINTING TOWARD END OF CAR
OR SIDE OF WAGON.

From J. A. Green,
Dayton, Ill.

HOW TO PUT IN STARTERS.

A SEASONABLE ARTICLE FROM DR. C. C. MILLER.

If you have only a few sections to fill with starters, it matters not a great deal how it is done. When you come to have so many that it makes several days' work, then it does matter, for some ways will take twice as long as others. I am not competent to say what is the best way, but I know the Clark fastener, if rightly used, is good, and I know it can be used so as to be a very poor affair. I feel very confident that many who are using other plans, if they should try the Clark in the right way, would find themselves greatly the gainers to change to the Clark.

In order to make this article practical I have brought pen and paper over to the shop, to write as I watch the work in the hands of the assistant who has always had that particular work for her specialty. In the first place the fastener must be firmly fastened to the table, so there will be no *give* when working. One way is to screw the fastener to a board long enough to reach clear across the table, and then clamp the board on the table. The clamps are then easily put on or taken off at any time. A board a foot wide and 18 or 20 inches long is screwed or nailed on top of the fastener, as near to the operator as may be, without interfering with the working of the lever. This board will need to be renewed perhaps every year, for on it are placed the hot bricks to warm the foundation, and the board is occasionally burned. I see Emma has her brick resting on a fire-shovel so as to burn the board less. On the end of the board nearest the operator are placed the starters in two piles. I use top starters $3\frac{1}{4}$ inches, and bottom starters $\frac{3}{4}$ inch. If only one starter is put in each section, then one pile of foundation will be enough, and a narrower board will answer. The starters are placed on the end of the board nearest the operator, and the brick beyond. The edges of the starters nearest the brick are evenly placed in the piles so as to receive the heat alike. The edges of the starters should be heated till quite soft. Indeed, it hardly matters how soft the edge is, so it is not actually melted. Only one edge of the starter should be warmed. Not only does it do no good, but it does harm to warm the whole of the starter. Therefore the instruction to lay the foundation in the sun or on some warm surface is decidedly bad.

Thirty to fifty starters are put in a pile; and when all but perhaps ten of these are used up, a fresh pile is put *under* this ten, to be warmed by the time they are wanted. Some care must be taken that the foundation be not melted. If it gets too warm it must be moved back from the brick or else the brick moved further from the foundation. I use two fire-bricks, one to be heating in the stove while the other is being used. They do not last very long, and soapstone might do better. Still better might be some arrangement heated by a lamp so as to keep a steady heat all the time. The heat of the brick is constantly changing, and the operator must get up every now and then to change bricks.

Before being ready for work, something must be had to moisten the edge of the presser block, or else the foundation will stick to it. A small paint-brush will do, but it takes more time, is more troublesome, and does not do as good work as an implement specially made, as follows: Take a piece of wood about 9 inches long, $1\frac{1}{4}$ inches wide, and $\frac{3}{4}$ inch thick. Nail on one end of it a pad or cushion made of old cotton cloth—perhaps woolen is just as good. Fold the cloth into several thicknesses, making it about 5 inches long and nearly $\frac{1}{4}$ inch thick. Use few nails. Now whittle the handle end a little narrower, and your paddle is done. Have a bowl or other vessel filled with *salt water*—starch water will do, but I think salt is better—and in this bowl dip your paddle till the pad is well soaked. Place the paddle under the presser-tongue till the tongue is well wet, and it may be well to let it stay in that position after the day's work is done, till ready for the next day's work. At the left of the operator's seat stands a box 16 or 18 inches high, on which is

placed a board of sections. The board for holding these sections should be as light as may be to have sufficient strength. I use some discarded queen-excluders, which answer very nicely, being $\frac{1}{8}$ thick, and having no greater thickness at the rims, and, what is of some consequence, being 17 inches wide, so as to hold four sections across. The sections on this board are four tiers high, making 136 sections on the board. One tier is placed on another, on the break-joint principle, so as to be more secure from falling. On the floor, or a little elevated, at the operator's right, stands one or several supers filled with starters, 500 of each kind in a super. On the table, at her right, is placed a board to hold the sections as fast as they are filled with starters. It is well to have a little projection fastened to the table at this point, so the board may stand well forward without falling off the table. The height of the seat depends on the height of the table and the height of the operator. My table is of such height that the upper surface of the fastener on which the section is placed is about 30 inches from the floor. A common chair, about $16\frac{1}{2}$ inches high, is just right for Emma, who is rather short. Although I am only about two inches taller, the seat is too low for me to use more than one foot comfortably. Now, remember this: To do good work, and do it easily, *you must keep both feet on the treadle*. So long as Emma sits on the seat, she never takes either foot off the treadle, even if she stops work for several minutes, simply because it is entirely comfortable to keep both feet on. If you feel inclined at all to use only one foot, you may be sure that your seat should be made higher, or some other change made.

Putting in a shallow starter is a *little* different from putting in a deep one. As I use both ($\frac{3}{4}$ and $3\frac{1}{4}$) I will describe each.

First, the bottom, or shallow starter. The section is placed on the machine and rushed against two $\frac{3}{4}$ -inch wire nails, one on each side, driven in all but $\frac{1}{4}$ inch of their length. These nails, used as stops, must be placed differently for sections of different width, and must by careful trial be placed just where they will allow the foundation to be put in the middle of the section. With the right hand, get one of the little starters and place it with both hands so that the presser will take a very small bite. Now give the feet a single swing forward—perhaps you might call it a kick—and let the feet *instantly* rebound to their position of rest. *Don't* try to hold the presser tight down till you straighten up the foundation. You will do that just as well, and a good deal easier, by letting the feet rest at ease. With a thumb at each side, push the foundation upright. You will now see the need of having the foundation cold, all but one edge. If all were soft you couldn't straighten it upright with a single push of the thumbs. Now turn the section over and get a top or large starter. Hold the starter in place with both hands, give a kick, and let the feet instantly come back to repose. The starter was held in place by the thumb and fingers of each hand, and the third and fourth fingers of each hand continue to support the starter till the section is turned over and the starter is pushed into its place. Although the weight of the starter itself might bring it to the right position, it is just as easy to let it rest on the fingers and make a sure thing of it. The right hand places the sections in nice order on the board, ready to be picked up four at a time

when put in the super. Just as soon as you find the least inclination of the starter to stick to the fastener at one little spot, before you take up another section take the paddle from where it is lying in your lap; lay it under the presser as you do a section; give a single kick, and then return the paddle to your lap. It may be you will put in 20 starters, and it may be not more than 4, before you will again need the paddle.

If you find that the presser cuts so nearly through the foundation that you are afraid the starter may fall out, it is probable the edge of the presser is too sharp. Sandpaper it enough to make it dull, or a trifle rounding.

How fast can this work be done? I have tried it just now, and I can put in four starters in a minute. With practice I think I could do better; but this is the first I have tried it, I think, for three or four years, and I never had much practice. Now I'll time Emma. She puts in 14 starters in a minute, and it looks easier when she does it than when I do it. She has had much practice. But she can't keep up that speed all day. The other day she put in 4400 starters (2200 sections) in a day, working, I think, about 9 hours. That makes an average of a little more than 8 a minute; but in her time was included changing her bricks and boards, and other necessary changes. She could not have done so well if the sections had been thrown pellmell into a basket, but the sections were neatly placed on a board, all right side up.

The character of the work is the very best. Just now I picked up a section at random, and pulled out both starters. Instead of pulling loose from the wood, both starters broke apart, leaving wax attached to the wood.

C. C. MILLER.

Marengo, Ill.

There, old friend, you have told us exactly what we all wanted to know. I do not mean by this that you have given us a better plan than anybody else has, or that we shall all decide to follow it; but you have told us how one of the "big guns" manages in preparing his sections so as to have them in readiness to be placed on the hives, not only in the home apiary, but in the out-apiaries as well. It does seem too bad, as you say, to be obliged to bother with bricks; but, my dear friend, why not put a lamp under the table so as to have the top of the chimney about a couple of inches below the brick, and thus keep the brick itself at a uniform temperature? Your idea of a little tool for moistening the foundation-fastener is tip-top. I like your remarks in regard to having your work handy. Why, it really makes me feel cross toward the whole human family when I see how people waste time, and especially when time is valuable. Just one simple illustration: It is potato-planting time just now, and almost everybody cuts potatoes in pieces more or less when planting. Well, just watch the way people go about it. I have tried a good many men, boys, and women. If you give them a knife and a barrel of potatoes, without any further directions, a good many will stoop over and reach into the barrel, and pick up one potato at a time. They will cut it in two leisurely, and then stoop over again, and deposit the pieces into a basket. Perhaps they will turn around and walk

three or four feet to the basket, and perhaps keep right on doing so. Just at this point, however, if I am around you will hear some scolding. Setting the basket close to the side of the barrel is an improvement. Putting the basket on top of a box or stool, so as to bring it level with the top of the barrel, is a still greater improvement; and this does very well when the barrel is nearly full of potatoes. Now, there is a difference of opinion in regard to sitting down or standing up at your work; but I am in favor of having the average man or woman sit down at any work such as cutting potatoes. I have seen men and women pretty well tired out, who did not seem to have sense enough to sit down, even when an opportunity offered. Some say they can work faster standing up than when sitting down. Well, there is some truth in this; but it will depend much on circumstances. I will now tell you how I direct in regard to cutting up potatoes. After you get about a third of the contents of the barrel out, tip it on its side and set it on a box, basket, or something to lift it up pretty high. Put your basket to hold the cut ones so that, as you pitch the potatoes forward, they will drop into this basket; but by all means have a box, barrel, or suitable seat of the right height so you can work rapidly and comfortably. Now, putting starters into sections, and all other little work of this kind, comes under the same regulations.

Fix things before you commence, so that you will not have to travel needlessly yourself, and then economize every inch of space possible that your hands must travel over in doing the work. Yesterday the weather was just right, and the ground was just right to start planting our Puritan potatoes. The tools and potatoes were put into the wagon. Three boys and a man were on hand, ready to drop. I started them to the field while I went to see to something in the office. Ten minutes later I found the horse, two men, and three boys, all standing still because somebody had borrowed our one-horse plow and broken the point off, and had gone away without saying any thing to any one about it. One of the men proceeded to get the rusty bolt from the plow. When I got around I set one of the boys to cutting potatoes, two others to sweeping the tool-house; then I found the man was turning the bolt the wrong way. He did not know that bolts to hold plow-points are made with a left-handed screw. He did not know, either, that some oil from the can right near him would make the bolt come out without twisting off the thread. In a few minutes I had the five all busily at work, and in two hours a quarter of an acre of potatoes were put in the ground nicely. If I had not been with them, working with brain and muscle, it would have taken them, very likely, until noon. The tool-house would not have been slicked up so it was a thing of beauty (if not a joy for ever), and I believe that all hands enjoyed making the work fly—the smart horse we had to help us, as well as the boys. A few minutes ago I saw a paper in the office, from the Secretary of Agriculture. This paper

considers one of the great issues before us just now—what shall be done for the average farmer to enable him to *make a living*? My suggestion would be this: He must use his *brains* in such a way as to enable him to do in one hour what ordinarily takes three or four hours. Here is a farmer who gets his team all ready for work in the field, and then lets the team and several hands stand still and wait, while he puts a point on his plow! Why, he ought to be ashamed of himself. (I really *am* ashamed of *myself*). The plows and every thing else should be in apple-pie order long before the busy season commences. I presume that that plow of mine stood in the tool-shed without any point all winter—yes, while there have been months of bad weather when we hunted around for work for the different ones to do. What has all this to do with putting starters into sections? Why, it has a good deal to do with it. Use your brains; work intelligently; sit up straight; look happy, and enjoy being just what God meant you to be—"boss of the universe." I was going to say, "lord of creation;" but then some of you may think that I meant only the men-folks; but I tell you, there are lots of womenkind who can boss bee-keeping, and farming too, as well as we men can do it; and there is a bright, smart little woman over at our house that is just one of that sort. I think Dr. Miller knows one or two such in *his* neighborhood. How is it, old friend?

QUEENS; HOW MANY EGGS DO THEY LAY?

HOW MANY BEES ARE THERE IN A COLONY? ETC.

In one of our leading bee-papers I find the following sentences: "The proper thing for the bee-keeper to do, in order to keep his apiary in good condition, is to renew his queens as often as once in two years." "A queen, whose egg-producing capacity is limited to 200,000 eggs, will, if furnished the proper amount of breeding-room, deposit more than one-half of those eggs between May 1st and October 1st." "I know from actual experience that the best of any queen can be realized in the first eighteen months of her life." "I do not believe that one queen in 10,000 would be worth keeping the third year." In another paper I find these words: "A good, prolific queen, say one that will lay one hundred thousand eggs in a year, will play out in two years." Now, I am at a loss to know the object of thus writing, and fail to see any good reason why some of our best apiarists are recommending the superseding of all queens the second year. It seems to me that they have been and are making a mistake, and one that will work damage to those who are novices in the business. From such assertions as the above, the idea seems to be gaining ground that it is an actual necessity to supersede all queens after the honey harvest of the second year. As a queen-breeder I suppose that it would be policy for me to push ahead this idea, instead of opposing it; for the oftener queens are superseded, the better the chances for the queen-breeder to dispose of his product. But as I do nothing from policy, believing in "the greatest good to the greatest number," I wish to go on record as saying that

good prolific queens do not need superseding in their second year, and that, instead of the queen's capacity being limited to 200,000 eggs, she is capable of laying more than three times that amount during her existence. To supersede queens at the age of two years is quite a task, even were it necessary; but when we come to consider that most queens are as good the third year as the second, while very many queens are good the fourth year, we see what a waste of time it is to go through all this work, simply for the reason that some have taught us that we should do so.

Now, let us look into the matter a little. I use as small a brood-chamber as any one in the world, the same having a capacity of about 800 square inches of brooding comb. This comb is kept filled with brood from the first of June to the middle of August, or 75 days. As there are about 50 cells to every square inch of comb, the queen must lay about 40,000 every 21 days (that being the time it takes to perfect a bee from the time the egg is laid), or 142,860 in the 75 days. Now, all good colonies generally have brood as early as February; and by taking the average increase of eggs laid from then to June 1st, and from the middle of August to the time of the queen ceasing to lay in the fall, which is about the first of October with us, we have at least 100,000 more, or about 243,000 for the year. If this is the case with the smallest brood-chamber used, it will be seen that still more would be reared in a large brood-chamber of nearly double this capacity, such as is recommended by the Dadants and others. In 1877 I made some large hives on the plan of the Adair "Long-idea" hives, making them four feet long. Into one of these I set a colony early in the season, they having a queen in her second year. She was worked to the best of my ability till she had ten Gallup frames literally full of brood. I now thought that she would be content, so that she would not brood in those which I put in for honey. In this I was mistaken; for, soon after I had 32 combs in the hive, she had brood in every one of them. We did not have the queen-excluding metal at that time, so I had to allow this two-year-old queen to do about as she pleased in the matter of egg-laying, and imagine my surprise to find, as I kept the honey out of the way of her with the extractor, that she kept brood in those combs for about two months, having at least to the amount of fifteen combs solid full of brood. This would give 86,250 eggs every 21 days, as a Gallup frame has 115 square inches, or thereabout, in it. As this rate was kept up for about 63 days, we have nearly 259,000 as the product of those two months, even after she had laid more than 400,000 while in the small hives the two seasons previous. The bees that worked in and out of the entrance of this hive during the basswood yield were a sight to behold, for it seemed like a surging army, going and coming all the while. For the benefit of the readers who did not take GLEANINGS at that time, I will say that this colony gave me a yield of 566 lbs. of honey that year, while the queen died of old age, or was superseded, during September of that year.

My queens average good and prolific in my small brood-chambers for three years, some doing good work in their fifth year; but as a few will fail in their third year, we will call it only three years that they will keep up the rate of egg-laying spoken of above. This would give us about 729,000 as the capacity of good queens during their lifetime on an

average, instead of 200,000, as given by the writers quoted. If I am correct, and I believe I am, from many experiments conducted along this line it will be seen that, if a queen laid only 100,000 eggs a year, she should be good for seven years. Then we see the extreme folly in the recommendation to supersede all queens during the fall of the second year of their life.

Again, we find in a noted work on apiculture the author saying that a good queen will lay 3000 eggs daily during the breeding season, which is correct where an ordinary brood-chamber is used; but when the same author discourses on the number of bees in a hive, he says there are from 20,000 to 40,000 in every good colony, and places their age at three months. Now, if I figure correctly, three months make 90 days, and 3000 times 90 would give 270,000 bees in that colony, barring accidents, instead of from 20,000 to 40,000. Brethren, let us try to be a little more accurate in our figures and decisions, lest we lead beginners astray, thereby causing them to do unnecessary work, or, perhaps, become disgusted with a pursuit which might otherwise prove profitable to them.

G. M. DOOLITTLE.

Borodino, N. Y., Apr. 17.

Friend D., may I suggest that your remarks, to the effect that our prominent writers may take up a certain position from policy, is hardly charitable? If there are writers on bee culture who advocate a certain line with a view of putting money into their own pockets, not because of the greatest good to the greatest number, I have not found them. Such a man would be ruled out of our conventions and journals before he ever got a fair start. Very likely we are sometimes on the wrong track; but we certainly would not advise our neighbor to do something to his *detriment*, that we might gain by it. Our experience would hardly justify all your large figures, although we agree with you in many of them. I would never discard a queen while she is doing good service, any more than I would discard a horse or a cow that was doing good service; but with us we find that most queens begin to fail in the third year, as a rule. Now, we would not remove them *because* they were two years old, or three, but only when the colony does not seem to keep up in numbers. For years the average number of bees in a colony has been given as from 20,000 to 40,000, and this great number is reached only just before swarming time. In selling bees by the pound we have opportunity to test the matter pretty fairly. Several years ago, we during one season bought something like 100 natural swarms of bees. They were blacks, hybrids, and Italians, and were brought to us just as the swarms came out. Five pounds was a big average, and very few ran as high as six. As the matter has been pretty well settled that there are not to exceed 5000 bees in a pound, this would give the average number of bees in a first swarm as 25,000. In all our experience, covering a number of years, we have found only one swarm coming up to 9 lbs., and this came from a hybrid colony whose queen was wonderfully prolific. Your remarks in regard to the result obtained from that Long-Idea hive might almost revive again the boom on this special style

of hive. Now, please tell us, friend D., why it is that you do not *continue* to work with a form of hive that gave you over 560 lbs. of honey in a single season. Almost every one of us succeeded in getting wonderful yields of honey from those hives with 30 or 40 combs; and yet, why is it that there is probably not one in use at the present day? I do not know that this has any particular bearing on the subject under discussion, but I have many times wondered why everybody had abandoned and broken up these long hives that were made with so much enthusiasm at the time.

BEES, INSECTS, LICE, AND SNAKES.

PROF. COOK TELLS US ABOUT THEM, AND DESCRIBES THE GLASS SNAKE FROM ACTUAL "INSPECTION" AND "POSSESSION."

MR. W. W. BLISS, Duarte, California, sends me three carpenter bees. They are large fine insects, but are so greasy that, unless I can remove the oil, they are spoiled as specimens. Insects should be killed either by use of a cyanide-bottle or by turning chloroform, ether, or gasoline, on them. In the latter case we may have to turn it on several times, as they may recover from a single bath. Insects should be put into a strong box, and inclosed in cotton, then a cent will bring them in the mail safely.

INSECTS FROM TEXAS.

A subscriber to GLEANINGS, Mr. Hailes, of Lytle, Texas, sends me a beetle and two spiders—all exceedingly beautiful. The beetle is *Lymentis Salliei*. As I had only two in our collection before, it was very welcome. It is black, lined and spotted with yellow—a regular Dolly Varden robe. I do not know the habits of this handsome beetle; but one closely related, *Euphrosia inda*, which I have previously described and illustrated in GLEANINGS, eats into luscious fruit like peaches and ripe apples. This beetle, I presume, is not common enough to do much harm. The grub probably lives in the earth, and feeds on grass roots, while the beetle may eat leaves or some other vegetable substance.

The spiders were very deep red, with a velvety luster. It would be hard to imagine any thing more beautiful. Spiders though they are, they have elicited words of strongest praise for their beauty from every one of the many persons that I have shown them to. We hardly know how much of beauty there is in the world. Even spiders and insects may be as beautiful as the most showy bird or flower. I am very glad to get such specimens.

IVY SCALE LICE.

A letter from our good friend Dr. C. C. Miller incloses some leaves of the common English ivy, which are thickly covered on the upper side with thick viscid nectar. The stems are likewise smeared with the same sweet substance. Dr. M. says he could discover no insects except a few scale lice. He thinks it hardly possible that so few lice could secrete so much nectar. He adds, that nearly all the leaves are somewhat varnished with the nectar, while some are thickly covered over their entire surface. Some have drops as if the nectar had dropped from above, while often the drops are minute, as if they had oozed from the leaves.

This is not new to me. It is the common ivy scale louse, and is very common in greenhouses,

and on the ivy on our houses. This louse drops the nectar in fine drops, and it is this that coats the leaves. We thus see why the sweet is entirely on the upper side of the leaves.

The best way to rid plants of these pernicious scale lice is to brush the scales off with a brush and very strong soapsuds. This is not very tedious, especially if we take it in time. The kerosene and soap mixture will be better than the clear-soap solution, as the mere contact with the scale will destroy the insect.

These scale insects deposit their many eggs under the scale, and so increase very rapidly; hence it is not wise to permit them to get much the start of us.

GLASS SNAKES.

I have just received a beautiful glass snake—more properly glass lizard—from Willie Atchley, Farmersville, Texas. Willie is only fifteen years old, and writes a delightful letter. He says he was introduced to me by GLEANINGS when he first learned to read. This glass snake—Willie calls it joint snake—was sent to me alive by express, and was alive when it arrived, so it could give me a knowing wink. This alone would show that it was no snake. A snake has no eyelids, and so can not wink. Its facial expression varies only with its running out its tongue; in fact, a transparent scale is all the protection the snake has for its eyes—natural goggles—if we may so speak. Willie says this is young, and does not break so readily as older specimens; yet a blow across its back would cause it to drop its tail. This has no legs, hence it is called a snake. It is beautifully striped with greenish gray, or drab, black, white, orange, and yellow. The nose is long and pointed, and the ear-pits on the side of the head are large.

The long pointed nose is useful, as this lizard digs in the earth, and so is often dug up in digging potatoes or roots from the earth. Although it is footless it can crawl like a snake, and it moves quite rapidly. The color of this one differs not a little from the descriptions which I find in the books. This is drab above, instead of yellowish green, and greenish white below, instead of yellow. I presume that the colors would change as it becomes older. Again, the books say that the tail is twice as long as the body, while in this the tail is a little shorter than the body. This leads me to believe that it had previously lost its tail, and a new one was growing on. This seems more probable, as about one inch of the tip of its tail is very tapering, and looks like an after-thought, or, rather, after-growth.

The reason that the tail breaks off is, that the cartilaginous unions of the vertebrae are very weak, and so separate with a blow, or any wrench. This is true of all lizards, but especially so of this one. The erroneous idea that the tail reunites to the body, arose, doubtless, from the fact that the tail will grow out again when lost. The generic name of this glass lizard is *Ophiosaurus*, which means snake lizard. The specific name, *Ventrals*, was probably given it because it crawls on its belly. The common name, glass or joint lizard, comes from its breaking apart when struck or caught. Altogether this is a very beautiful and interesting lizard, and I will double my thanks, which are already hearty, to Willie or anybody else who will send me an old one.

I have just received two fine blow-snakes from

Virginia. The sender supposed they were venomous, but they are entirely harmless. I should especially like a big rattlesnake from the South or East. We have only the massassauga here, not the rattlesnake.

I shall be very glad to describe or name any animals high or low, from the South or anywhere else, that interest bee-keepers, especially any that are in any way associated with bees. A. J. COOK.

Agricultural College, Mich., Apr. 9.

Well, look here, old friend, you are not the only one who rejoices in the possession of a glass snake. Mr. W. P. Phillips, of Kaufman, Texas, sends us one about as you describe it, only it has a full tail, without any abbreviation or "after-thought." When received we put it into a box with a glass cover sliding in grooves, and I set the box on my table to show to the friends at the noon service. I did not occupy the whole time of the service, however, in talking about snakes; my second theme was, "Love ye your enemies;" and I got to talking so earnestly about it that I forgot all about the snake. I did notice, however, that Ernest looked a little bit troubled, and I saw his eyes drop toward the floor, but did not think much about it. When prayer was ended, however, they all rushed forward, telling me the snake had "got out." He had used that long tapering nose you speak of, by means of a little crack that I left him for air, to slide back the glass. Then he leisurely crawled out, coiled around among the great heap of letters on one corner of my table (waiting to be answered if I shall ever get time), and then tumbled off on to the floor "ker flop."

I was so interested in my theme that I did not hear the snake drop, nor did I see it at all; and, strange to tell, he did not snap his tail off either, but just made faces, and darted out his tongue at the boys and girls, who were much more interested in his snakeship than in *loving their enemies*—especially *just then*. John held the box before him, with the glass slid back; and the rest encouraged him by surrounding him and urging him on. Pretty soon the snake crawled back into its case, and has got out only once since. The girls are feeding it flies, bugs, and angleworms, which he takes and seems quite contented. When the office is cold he winds himself up into a compact little circle, much as the bees draw themselves up in the winter time. When the office becomes warm he stirs around and amuses himself by trying to push his door open again. We have not tried snapping him in two yet. We are afraid we should have more trouble in putting him together again than in making the break. Will friend Phillips please accept our thanks?

A TABULATED REPORT OF OHIO BEE-KEEPERS.

GATHERED BY THE STATISTICS COMMITTEE OF THE STATE BEE-KEEPERS' ASSOCIATION AT CLEVELAND.

Mr. A. I. Root:—I send you by this mail the tabulated reports of bee-keepers, so far as sent me in answer to my request. As there have been some

CRATING AND MARKETING HONEY.

VALUABLE SUGGESTIONS FROM ONE OF LARGE EXPERIENCE.

In regard to shipping-cases for comb honey, I believe the size, 24 to 32 lbs., to be the very best, all things considered. In fact, some honey was crated in stiff crates of six cases of 12 lbs. each, making a total weight of 80 lbs. or so, and I never had any honey ship better. The crate was open all around, and the cases glassed, so the railroad men could see what they were handling. One great danger to small cases is, that they will be piled up; and when other freight supporting them is removed, down they go. Your humble servant had about 600 lbs. of beautiful honey entirely ruined this last year in just that way. The honey was in 12-lb. cases, and not one-sixth of it came unbroken. I am convinced that a rather showy and very plain label, six by six, of such size as to be conspicuous, will be a valuable aid to safety in shipping. I think the great thing to aim at is to have as large bottom area as possible, compared with the weight of the case, and there should never be two tiers of sections. When any in the upper tier are broken, they daub the ones below. Of course, any one who is thoughtful will put heavy paper between.

Another great aid to neatness would be to put heavy paper in the bottom of the cases in such a way as to come up a little around the sides to prevent the honey running out of the cracks of the case and smearing every thing. I have sometimes seen paper tacked on the outside, but this is unsightly.

I can sympathize with friend Nance thoroughly when he speaks of people asking him whether his was bee honey. Why, this very day an old and very intelligent-looking gentleman asked me if this honey I was selling was genuine. It was broken honey on butter-plates. "Why," said I, "I am surprised at your asking me such a question."

"Oh!" said he, "that is just as easy as making hens' eggs, and they are doing that every day."

When I meet these people I have now one way with them. I get them into bee-talk; and if they know a little about bees, so much the better; and then by the time I am done with them they are convinced that I am selling pure honey, whatever any one else may do. And that is, after all, the main point. Of course, my private estimate of the average intelligence of such as the foregoing is not very high; but it would not do to let them know that. I have found, time and again, that traveling men delight in repeating or originating *lies* about our business, about which, in point of fact, they knew absolutely nothing. One in particular in Logansport, last summer, told me that the firm he traveled for (Franklin McVeagle & Co., Chicago), made and sold lots of manufactured honey, and especially comb complete. I wrote them, giving his name, and they in their reply branded him as a liar, and said they sold pure honey, in comb and *out of comb*.

In regard to shipping comb honey, after having shipped thousands of pounds in all sizes of cases, and at all times of year, I would never advise any one to ship comb honey in less than *car* lots when it must be transferred. That settles the matter for me. The risk is too great. It is like running your own risk against fire and not insuring in some good company. Any one accustomed to handling honey could almost give the disposition and character of

any person on inspection of honey he had shipped to market. How often do we find cases *faced* with beautiful white sections; and inner rows composed wholly or partly of culls—dark, half-filled combs! In fact, honey in pasteboard cartons is not very popular among our merchants, owing in part, no doubt, to the temptation to put in a few poor boxes where no one can see them. That's all right for once, if you have no conscience; but be sure you don't put any name or address on your shipping-boxes so they can remember who you are. Honesty is the best possible policy, whether in packing honey or elsewhere. I have in my mind's eye just now as fine a lot of white-clover honey as one would wish to see, which is in one of our commission houses here awaiting a buyer. Why does it not sell? I'll tell you. It is in 56-lb. cases of 14-lb. sections, and nearly half of the sections are loosened out of the frames. This is caused largely by the extreme size of the cases and the avarice of the shipper, who put in many sections that were imperfectly fastened at the bottom and sides. Far better give the poor sections away at home than to send them along to market to spoil the condition and sale of a lot of good ones.

Another great mistake that our bee-keepers make is to use the unfinished sections of last year in the hive this year, having in them the candied honey that was kept over. We have done so to our sorrow, and have handled lots of honey that became candied before being sold, for this reason. Always put the unfilled sections that contain a little honey in the extractor, and throw out the honey that is in them. Ten or twelve sections at a time can be easily put into the extractor, to expedite matters.

H. F. MOORE.

Cleveland, O., Apr. 4.

(To be continued.)

Friend M., your suggestion in regard to a thick paper, with the edges turned up in the bottom of the case, so as to hold the honey instead of letting it run out and daub every thing and everybody, it seems to me is a very wise suggestion. I never want to see any more such stickiness as I have seen twice during the past year, with broken comb honey.

 THE VAN DEUSEN CORNER.

INVENTING NEW HIVES.

Friend Root:—I do not think the Van Deusen metal corners would interfere with the honey-knife in uncapping, to any great extent. The new corners do not project quite $\frac{3}{8}$ of an inch from the side of the frame, and are beyond the sweep of the knife unless it happens to slip. But this is only "think so" on my part, for I produce no extracted honey, and have never uncapped a comb in a frame having these corners. They could not possibly interfere so much as would your tacks, for they project less than half as far, and are situated more remotely on the corners than tacks can be placed.

Of course, you abandoned the plan of spacing frames with tacks a good many years ago. So did the rest of us who handled frames very much. It is one of the early symptoms of the bee-fever. The first bad symptom is to invent a new hive, this usually appearing with the victim's first colony of bees. When this colony casts a swarm or two, and the owner finds that, in placing the newly hived

swarm on its stand, the frames slipped over to one side and the bees fastened them all together with a mass of new combs, he spaces all the rest of his frames, for a year or two, with tacks. Then he finds that, when he lifts a comb, the tacks scrape the combs and catch on the top-bar; and when he tries to return the comb they scrape and catch again, and the frame refuses to go to its place without lots of coaxing. He then concludes they are more in the way than a wheelbarrow on a dark night, so he pulls them out and throws them away. The tack stage rarely lasts beyond the second or third year of experience.

THICK TOP-BARS AND HONEY-BOARDS.

I have been an interested spectator of the GLEANINGS symposium on the thick top-bar and the honey-board. It may be that thick top-bars closely spaced will prevent brace-combs above the frames; but even if that be true, I think it safe to predict that the honey-board will be retained by a large majority of bee-keepers. Those who produce extracted honey, and believe in confining the queen to the lower story, will keep it; and the comb-honey men who believe in contraction (and their name is legion) can not get along without it. The shallow frame in some form is the coming frame, and that necessitates the use of the excluder. The bee-keeper with a shallow fixed frame cares but little for the burr-combs under the excluder, for he can make nearly all the necessary observations by standing the brood-chamber on end, and investigating without removing the honey-board. In comb-honey production contraction is the key to success, and the excluder alone makes contraction possible.

Audubon, Ia, Mar. 13.

Z. T. HAWK.

If excluding queens from the supers is all the use we would have for a honey-board, why not dispense with the slats, and use instead a plain sheet of zinc large enough to cover the hive? This would be very much cheaper. We sell thousands of sheets like this to large honey-producers, who desire to keep the queen below, but who never used a slatted honey-board.

CALIFORNIA.

THE LAST THREE YEARS OF FAILURE OF THE HONEY CROP.

THE remarkable failure of the honey crop in California for the last three years has set the best minds in the business to thinking whether it is worth while to keep their means invested in a calling so uncertain and precarious. In seven years we have had only two seasons in which bees paid. It is true, that in both those years, 1884 and 1886, they paid as nothing else could pay, as no other legitimate business is likely to pay. They increased 400 per cent, and produced honey which brought 400 per cent on the capital invested. In other words, the owner's capital was multiplied four times, and his apiary four times as large. In 1888 and '89 there was plenty of rain—an abundance of it. But it was all heaped up like a hill—all in a pile. To make a good honey season here we must not only have plenty of rain through our winter season, but it must rain several times after the black sage comes into bloom—that is, throughout March and most of April. We are just now at the turning-point (latter part of March) where the rain

may cease and make a poor season, or continue for a month and make a first-rate crop of honey. Who can tell?

FRAMES AT FIXED DISTANCES.

In March 1st GLEANINGS you ask, "Which is the greater evil—burr-combs or fixed distances?" I would answer, fixed distances—yes, a thousand times greater. Why, it destroys at one fell blow the most vital principle of the Langstroth movable frame! Why not go back to the Harbison hive? It had this principle of frames set on nails, forty years ago, together with other machinery to make frames as difficult to get out as possible. Staples or nails, it is the same thing. Drive a headless nail through the frame, and then let the bees fill it all over and under with bee-glue, and you would have to have a crowbar, a pick-ax, and a wild "Ingin" to handle that hive. No, no! Let the brace-combs come. If their absence is to be bought at such a price, let the burr-combs roll in—but spare, oh spare the movable frame! Don't think that I love these burr-combs—no, no! I do not yearn for them, I do not pet them in the daytime, nor howl after them in my sleep at night. I could part with them without a sigh, a tear, or a groan; but, part with them at such a cost as this? Never, never.

The bees are just preparing to swarm. All nature has put on its most bewitching harness. The black sage is coming out in its holiday attire—has thrown its banner to the breeze as the unrivaled honey-plant of California, and rivaled only in the world by the white clover. Many bee-keepers are sure of a big season. They are already figuring out the way they will invest their money. Don't you think we had better wait until we see if we get three or four more good rains? J. P. ISRAEL.

Olivenhain, San Diego Co., Cal., Mar. 30.

The old Harbison fixed frame is something that none of the Eastern bee-keepers would tolerate. Of all fixed frames this is the worst to handle, I should say, from what I have seen of cuts and description; and if the riddance of burr-combs meant the use of such a frame, I would heartily agree with you. But *all* fixed frames are not equally difficult of manipulation. If I am any judge, the Van Deusen fixed standing frames are about as easily handled as any suspended frame. Propolis can not gum them together, and, of course, a screw-driver and cold-chisel are not needed to pick them apart; and they are always ready for moving to out-apiaries or shipping. The Heddon closed-end frame, with the thumb-screw, is not so difficult to manipulate as many might imagine. I scarcely ever find beginners who space their frames properly, and then they want to know why the bees build their combs so crookedly. Fixed guides would remedy this. After all, fixed or standing frames may not receive a very hearty recognition at the hands of practical bee-keepers; but a wonderful amount of interest from those who use suspended frames is being manifested. In regard to burr-combs and fixed distances, you are laboring under a slight misapprehension. Fixed distances are not a *necessity* for the riddance of burr-combs, but only assist toward that end. J. B. Hall, who has no burr-combs, uses, if I am correct, suspended Quinby frames without fixed distance-spacers.

FROM THE LAND OF THE PHARAOHS.

BEES AND BEE-KEEPING IN EGYPT.

WHEN Israel and his children had done eating the corn they had brought from Egypt, they decided to go down again, and they took with them a little balm and a little honey, spices and myrrh, nuts and almonds. Spices, balm, and myrrh, seem to have been an article of commerce between the Holy Land and Egypt, as we see the Ishmaelites carrying it down with them to Egypt, on their camels. The balm of Gilead has disappeared long since; honey is still to be had, although it never was so plentiful in this country as to need to be exported by the natives. The treacle, or "dibs," manufactured by the Mohammedans out of their grapes, mostly about Hebron, in the very place where Joshua and Caleb cut down a cluster of grapes, still forms an article of commerce, although later on we read in the prophet Ezekiel that Tyre imported honey also from Israel. The best Palestine wine is made out of the grapes of Hebron; but the Mohammedans, whom their law forbids the *handling and drinking* of wine, make treacle out of their grapes. This is carried in he-goat skins into Egypt, just in the same manner they used to do it in this unchangeable place 4000 years ago. The bottle which Hagar took, filled with water; the bottle of milk out of which Jael gave Sisera drink; the bottle of Hannah, the mother of Samuel, in which she took wine; the bottle of wine which Saul met, carried by a man near Bethel; also the bottle mentioned by the prophet Jeremiah (18: 12), were made, very likely, in the same way, if not in the very same place, as the best are now manufactured out of good he-goat skins at Hebron, and used for the transportation of oil, butter, honey, and treacle, and on a great scale for carrying water from the well or fountain to the houses, the mouth being tied with a string, as all the bottle is soft. Spices also, and myrrh, are brought from Mesopotamia. Nuts and almonds are not so abundant now, but in their stead dry fruits are greatly exported, such as raisins and figs, which plants have ever been abundant here, as Judah and Israel dwelt safely, every man under his vine and under his fig-tree, from Dan even unto Beersheba, all the days of Solomon.

The way to go down to Egypt on camels is still practiced by the Bedouins, the very descendants of those Ishmaelites; but the way by sea is a good deal shorter and safer, as their "hand is against every man." The land of Egypt still receives a great deal of honey, mostly imported, as I thought, from the Grecian Archipelago and Asia Minor. I thought very little of the apiculture of the country when I entered the city of Alexandria in December last. This is a very commercial town, and the omnibuses, carriages, and all ways of locomotion, driving up and down the streets, and the railway whistle, once more struck my ear. I felt nearer to civilization again. In the markets, every thing is properly arranged. You know in our town of Jaffa the streets are hardly ever swept, and there is no want of display of goods. The natives know nothing, and do not care that the goods be properly put before the public.

I went out for a stroll into the country, to see what vegetation was there for bees and animals. Across the Mahmondie Canal, on which the bales of cotton coming from the country are conducted on ships to Alexandria, dragged by four or five men,

the fellahin of Egypt have built some mud villages. At the Khedive's Garden of Nuzha (enjoyment), the fellah village of the same name was built. I was delighted to hear of a man having bees. I went to him, filled with prejudice which I had received from some travelers to the effect that the Egyptian fellah would under no circumstances talk about bees, or let his bees be seen. I was presented to a man owning bees, and immediately the man brought a ladder of six or seven steps, put it against his house, and preceded me to the apiary, which was on the house-top, consisting of 22 hives of different shapes, irregularly made of mud of the Nile, and one in a cement-barrel. He even offered me some for sale at \$1.00 each, which, after considerable bargaining, he would let me have at \$2.50 each. They were placed horizontally on each other, in four rows, and besmeared with mire out of the canal, which altogether secures them against the occasional rains and warm sun during the long and fearfully hot summer (or sun) months. The owner seemed to know a few principal items of the bees, as the existence of a duke (queen), drones, and worker bees, or females; that in a favorable year honey is taken twice by the bee-master coming from Alexandria. He had read of bees, and, as he said, could not judge how much honey was to be taken, and how much left. The bee-master discharges his duty conscientiously. When a swarm issues he puts it into an empty clay or mud cylinder, and leaves it till the harvesting season, which is about February or March, as near as I could make out, partly from clover and partly from broad beans. There is a second harvest about the month of August, and which he thought is principally from the trees in the immense Royal Gardens. Very likely they yield some honey, but more likely the locust-trees by which the road is shaded give him that same crop.

The way this man kept his bees, harvested, swarmed, and built his cylinders, was very much like the average bee-keepers in Palestine; and when I say the average, I think it is as in every other country and with every other pursuit, that the greatest number pursue their calling carelessly. It is all left to Allah (God) and luck, meanwhile not moving a finger toward luck. They are the laziest set of people you ever saw, smoking or sleeping whenever they have a chance, and this "chance" often presents itself. In general they draw back from any innovation on what "my forefathers did. I will stick to their example; they knew well what they were about."

I did not find this first apiary and the description of the owner in accordance with what an Austrian bee-keeper, who recently had traveled about the Orient, described them to be. As he talks German only, he could not find out exactly their way of bee-keeping. He even says, "Not a single interpreter could be found that could translate the word *bee* in Arabic;" but I found no difficulty in finding this apiary above described, and I met with no drawback at all. The man never expected to be paid for his information. The said traveler paid \$2.00 to whoever would let him know of the existence of an apiary, and it was not until the fifth day that he took hold of a bee; and with this trophy and the \$2.00 bucksheesh he found some miserable-looking apiaries, half ruined, and the others going to ruin before long. Now, it is very common that such passers-by, in a strange country, give their opinions as facts, and utterly change the face of a

country, doubtless without thinking *themselves* to be utterly wrong.

A little bit encouraged by the apiary at "Enjoyment," near Alexandria, I took a walk into the country near Cairo, to see the ruins of the apiaries described, and with fear of being as inhospitably received as our traveler. I went to the village, trying every possible way to have at least a look at the apiaries. As our traveler could see a hive only after giving a good bucksheesh, and would be told nothing of the interior of the hive, could buy none, and was even warned to draw back, his conclusions were thus: "Bee-keeping in Egypt is going to ruin." The village of Gizeh has the same empty hives; but every one readily gave me information, saying that bees were to be found only further out in the country; that if I could take a donkey-driver, the general way of traveling round about Cairo and other towns in Egypt, he would show me what I wished for, provided I paid the regular fare for the donkey. We immediately agreed, and on donkey-back I rode out into the beautiful clover-fields which are irrigated by the waters of the Nile, and once a year by the overflow of the Nile, toward the middle of August. What I saw I will relate at another time.

PH. BALDENSFERGER.

Jaffa, Syria, Feb. 11.

To be continued.

SHALLOW HIVES.

MORE ABOUT THAT SHALLOW WISCONSIN HIVE THAT HAS BEEN IN USE SO LONG.

Friend Root:—In mentioning my hive at the Wisconsin Bee-keepers' Convention at Madison, you say it "has a rabbeted top, similar to my Simplicity hive, to keep out wind and rain." I want to explain that the rabbet in my hive is not made to keep out wind and rain, but to always keep just a bee-space between the frames of two or more hives when tiered up on top of each other. I now have a hive of the first lot of 50 that I ever made. I made them in 1865. The frames had a full bee-space, both above and below them, just as an ordinary one-story hive should have; but when I set two or more of them on top of each other there was a space of $\frac{3}{4}$ inch between the top and bottom of the two sets of frames, and I invented the rabbeted sides of the top and bottom of my hives to correct this fault, and I have used it on all hives since the year 1863, when I first used the above rabbet. The only change I ever made in my hives was in making the frames deeper, and in this respect I have tried various depths, from $4\frac{1}{2}$ to 9 inches. But of whatever depth, I used them in pairs. In your original Simplicity you had the same difficulty, and met it by making the top of your frames without a bee-space over them; and in making your new Dovetailed hive I see you have met the same difficulty by making the frames even with the bottom of the hive, and making a bee-space under them by nailing strips on the bottom-board.

Now, in my plan there is always a bee-space at top and bottom, with a plain cover and plain smooth bottom-board; and yet when two or more hives are set on top of each other the necessary bee-space between them is maintained; and I consider it the best thing for the purpose yet in use. If you think it of interest, I will send you one of my hives that I made in 1865, and one as I make them now. Mr. I.

Ingmondson, of Leroy, Minn., removed his bees from Langstroth hives to them in 1866 or '67. He is dead, but I am making research as to what became of his hives and bees. When I invented my hive I was using Langstroth hives. I was agent for his patent in this county, and have never regretted changing hives, although I do not think them indispensable to successful bee-keeping. I first thought the closed-end frames a big thing, because they are reversible; but I did not like them after a fair trial, and I don't think reversing pays for the trouble.

Forestville, Minn., Mar. 18. BARNETT TAYLOR.

Friend T., I beg your pardon for intimating that the rabbet between your upper and lower stories was made to keep out wind and rain. Since you suggest it, I remember now, that, in devising the Simplicity hive, this beveled shoulder was decided on more for securing the bee-spaces you mention, than to keep out the wind and rain. It does seem as though the average bee-keeper would *never* be satisfied with closed-end frames or closed top-bars.

ALFALFA A HONEY-PLANT IN UTAH.

BEE-HUNTING; BRUN, AND HOW HE GOT HIS SHARE.

BEING an interested reader of GLEANINGS, also an amateur bee-keeper, I thought I would pen you a line. I noticed an article in GLEANINGS from D. L. Williams, of Idaho, on the subject of lucerne, or alfalfa. What he says on the subject would apply to this locality as well, as it is raised here extensively, averaging from three to eight tons per acre, also growing seed in paying quantities. I believe it produces more honey where it is necessary to irrigate it. We usually irrigate six times through the season, getting three crops of hay. There are thousands of acres raised in this county alone, and it is raised extensively all over the territory. That and sweet clover are our main honey-plants. The bees work on it from about June first to the middle of October.

My two brothers and myself own a sawmill in one of the canyons east of Provo. We had some exciting experience in bee-hunting last summer. First, we found a large number of bees at work in the little spring which supplies us with water that would do A. I. Root good to imbibe on a warm summer day. One afternoon we quit work earlier than usual, and followed one of the lines that led up the mountain, and in a short time we had located three bee-trees, one of which was in a large black fir, about four feet through. Next on the programme was an advance on the peaceful inhabitants of the trees. Armed with axes, pails, tubs, smudge, etc., we scored an easy victory, carrying off for spoils (on the double quick) a heavy load of bee-stings. It would have done you good to see us taking steps down the mountain, utterly regardless of any thing but the wild desire to get away from that tree. We finally manufactured veils, and with some misgivings returned to the tree, where we found the bees all quiet. We hived them in good style, putting in all the brood-combs, and getting about 100 lbs. of good honey. We next proceeded to convey the spoils, together with the stings we carried in our hands, faces and hair, to the mill. I have cut quite a number of bee-trees, but I never saw one equal to this one in the stinging line. About sundown one

of the boys went back for the bees, but he found his possession disputed by a large grizzly bear. He did not dispute long, however, evidently thinking discretion the better part of valor. He strolled back, hat in hand, making the best time on record. Some of the boys said you might have used his eyes to hang your hat on when he arrived. We returned next morning, but found that Bruin had recklessly strewn things in every direction, having evidently taken some of the remedy so highly recommended for rheumatism.

F. M. WHITING.

Springville, Utah Co., Utah, Mar. 3.

Thanks for your facts in regard to the alfalfa in Utah. If the bees do so well in trees, I would by all means start an apiary; but I want to tell you that, if you expect to prosper as a bee-keeper, you will have to come to some sort of understanding with that grizzly bear. If he has had a good dinner of honey *once*, he will not forget it, you may be sure.

BOTTOM STARTERS IN SECTIONS FOR SAFE SHIPPING.

DR. MILLER CALLS OUR ATTENTION TO AN EXCEEDINGLY IMPORTANT MATTER.

THE more completely a section of honey is filled out at top, sides, and bottom, the better it looks; and for shipping, it is quite essential that the attachments at the sides, and especially at the bottom, be good. For several years I have secured this by putting in a starter at both top and bottom of the section. When the comb of honey is fastened just as securely on the bottom-bar of the section as on the top, you have about all you can get, so far as the section is concerned, to secure you against breakage in transportation. When a single starter is put in a section, and fastened only at the top, the bees often make no fastening at the bottom, and very little at the side. To make such sections carry more safely, some have made a practice of separating them in the shipping-case by pieces of heavy manilla paper, much in the same way as sections are separated in a super, only the manilla paper extends from top to bottom of the section. The idea is, that if one section breaks out it topples over against its neighbor, and, like a row of bricks, the row of sections clear across the shipping-case is broken out. The manilla paper prevents this, so that one section breaking out does not affect its neighbor.

Another device has been, to invert the section when about half finished, when the bees make sure to secure both top and bottom—a good plan, but too much work to invert each section singly, and not satisfactory otherwise.

Still another way is advocated; that is, to use open-sided sections, so as to induce the bees to fasten the combs better. Different advantages have been claimed at different times for these open-sided sections, and I am a little skeptical whether any one of the advantages claimed has ever held good. When I first heard of open-sided sections—I am not sure whether any thing was said about them in print then—I had a good deal of faith in them, and whittled out the sides of a hundred, with a jack-knife. The chief advantage then claimed, was, that with such sections separators were not needed. I was disappointed in this; and, indeed, in my limited trial I did not succeed in finding that

they had any advantage. I have seen specimens of open-sided sections in which the honey was beautifully filled out clear down to the bottom at both sides; but I have seen it just as beautifully filled out in common sections, and with a single starter at that. But even if the bees should do better work at filling out a certain kind of section, I still think I should want a bottom starter in each section, to make *sure* that the comb is built out and fastened just as well at the bottom as at the top.

I have experimented considerably to find out the best width for a bottom starter. If too large a starter is used it topples over; and if too small, the bees are pretty sure to gnaw it down. I succeeded, however, in using bottom starters an inch wide or deep, and contemplated trying them larger. But later I found some of these had fallen over, and I settled down on $\frac{3}{4}$ of an inch as large enough. This, with a $3\frac{3}{4}$ -inch starter at top, fills the section except a small space between the two, which the bees have no difficulty in filling up. I have been asked whether a bad-looking section is not made if the top and bottom starters do not meet pretty nearly in the same plane. Not at all. I have seen the top starter swing to one side, and the bottom starter bend over to the other side, so that there lacked half or three-quarters of an inch of being a perpendicular line from one to the other, and the bees seemed to finish them promptly; and when finished, you could not see the slightest imperfection. It takes no more foundation to fill a section with two starters than with one, the only difference being the time taken to put in the extra starter, making an extra expense of one or two cents on a hundred pounds, and sometimes saving a good many cents in shipping.

C. C. MILLER.

Marengo, Ill., Mar. 13.

Friend M., our experience in buying honey shipped in to us during the past two years has prepared us to indorse most emphatically the point you make. We are glad, also, to have your testimony in regard to the open-side sections, even if it does not favor them. One thing is certain: Our orders for sections made with open sides are getting to be few and far between.

REARING AND SHIPPING QUEENS.

READ AT THE VERMONT STATE BEE KEEPERS' CONVENTION, BY A. E. MANUM.

THE queen bee, whose beauty and capability we can scarcely comprehend, is the most important member in a colony of bees; and as she is the mother of every bee in the colony, upon her depends the prosperity of the colony and the success of the apiarist. The attempt to give every detail incidental to queen-rearing, in a single essay, meets with an obstacle. Either we must abridge until the charm is lost entirely, or, if we would specify and portray, many essays would be necessary ere the subject is exhausted.

For a number of years I have reared queens for sale—not that the business has proved very remunerative, but because I love it. There is no part of bee culture that is so fascinating to me as that of queen-rearing. There is a charm about it that stimulates my enthusiasm from the beginning to the end of the season.

The careful breeder commences in early spring

by watching his queens and studying the desirable qualities of each one selected the previous year for breeders; and this watching and selecting continues throughout the entire season; and if the desire of the apiarist is to improve his stock from year to year, much care and judgment should be exercised in making selections. The simple fact that a queen's workers all have three bright yellow bands does not, in my estimation, qualify her as a desirable breeding queen. This *one mark*, however, is, I fear, too often the only one sought for by many bee-keepers as a sure mark of excellence.

In selecting a queen for breeding, I not only want her to produce workers that show three yellow bands—dark yellow or light brown preferred—but they must be workers that have a large robust body, with large wings covering the entire abdomen. I like to see bees with large broad abdomens, well rounded out, and full down to the extremity, rather than to see bees with slim delicate forms. I also want bees that are good honey-gatherers, good comb-builders, and that are not inclined to brace-comb building, and that are little inclined to swarming; that are quiet, and adhere well to the combs when being handled; and, withal, I want bees that will withstand our severe northern climate.

To produce a strain of bees with all these desirable qualities is not an easy matter. It requires years of watching and selecting, working first for one desirable point and then for another. But if we could have full control of the mating of our queens we could then improve our bees much more readily than now. As it is, we must test our queens at least two seasons to ascertain whether their daughters will produce workers that meet our wants. When we get such a queen we have one that is very desirable for breeding purposes.

I have often had queens that I had watched during the season, and in the fall registered them as "good," and in the spring following I would discard them for breeding purposes, owing to some defect in their wintering or springing. Therefore we should make every effort possible to place the honey-bee higher up on the scale of perfection; not only that we ourselves may reap the reward of our labors, but that those who come after us may be benefited thereby.

The person who undertakes queen-rearing as a specialty should be possessed of a very patient and persevering nature, as the business is complicated, and is accompanied with many reverses and disappointments. Were I to designate who should breed queens as a specialty, I should say at once the ladies, because they, with their delicate, womanly tenderness and gentle nature, are better adapted to this light and interesting work than are the men.

Queen-rearing is a business that requires close attention and much study. First, we must prepare our bees for cell-building and watch their construction from first to last, and prune out all inferior cells; and when completed, and of proper maturity, they are to be removed, and either given to nuclei where the young queens will hatch, or transferred to the nursery, where they will as readily hatch as in a nucleus or in a colony of bees. These cells should be removed and transferred at the proper period of maturity, or disappointment and loss will be the result.

I have found that the best time to transfer queen-cells from the builders to the nursery is when they have reached the 12th day from the egg.

I have successfully transferred them at eight and nine days; but unless the weather is favorable, and great care is taken in transferring, failure is liable to follow.

After the cells are introduced into the nursery they are placed in a strong colony of bees that are run for extracted honey by setting the nursery in the upper story in place of an extracting comb. This colony may have a laying queen, which may have perfect liberty to occupy the upper story if she wishes. Together with this nursery filled with completed cells I have set by the side of it combs with cell-caps and cells ready to be capped, where they were completed the same as though they had been given to a queenless colony. I have managed in this way without the use of excluding honey-boards. Yet I would advise the use of excluders for this work, and I would also advise the placing of a card of hatching brood near the nursery in order to hold the hive bees in the upper story cold nights, as otherwise the cells or young queens might suffer from a low temperature. It is also advisable, during a dearth of honey, to feed the young queens as they hatch in the nursery. But if honey is coming in plentifully, the bees will feed the young queens, no matter how many there are. All will be cared for.

In rearing queens for sale, as well as for my own use, I aim to breed from my very best mothers, such as have given me the best results the previous year. I believe we should rear queens with as much care and judgment as in breeding farm stock. Although in our ignorance we can but dimly comprehend the wonders in nature, yet we should make every effort to progress. Notwithstanding I rear queens for sale, I would advise all who can to raise their own queens as much as possible, rather than buy them, as there is a time in every well-managed apiary when queen-cells are plentiful; and by selecting from the best colonies, the bee-keeper can, with very little labor or experience, rear his supply of queens, and at the same time experience much pleasure in so doing. But to rear queens on a large scale is another thing altogether, as it requires a large amount of fixtures, and no little experience, to keep a supply of queens on hand, which is necessary to make it a success.

SHIPPING QUEENS.

I have found that the best time to ship queens long distances is when they have been laying not longer than five days. Such queens will endure transportation much better than those a little older. But if kept until after a certain period, when they are somewhat reduced in size, they can then be shipped with safety. Queens one or two years old are liable to get injured in transit if shipped when full of eggs, because of their being tumbled about in the mail-bag, and also by being so suddenly deprived of the opportunity to lay eggs; and surely this of itself must be very injurious.

I have oftentimes selected what I believed to be extra good queens, to be sent to some person who ordered queens to breed from, and which were from necessity sent when in this delicate condition, a few of which would be reported as worthless; for, after being introduced, they would lay but a few eggs and then die, causing both the buyer and seller much disappointment and vexation.

I have decided that, in the future, I will use my own judgment as to the proper time to ship valuable queens. Therefore my advice to all buyers is,

order early, and allow the shipper to decide when to ship.

In conclusion I would say, let us climb up higher and acquaint ourselves more thoroughly with the laws of nature, and take advanced lessons in the college of the universe; and what we do not know now we may know later on. Therefore let us reach out for the truth, and hold fast to it. Yes, buy it with our own exertions; then we shall know its worth; and while here in council let us learn from each other such lessons as will aid and assist us in solving some of the mysteries of bee culture.

Bristol, Vt., Mar. 11.

A. E. MANUM.

HORIZONTAL VS. PERPENDICULAR WIRING.

FRIEND HILTON INDORSES ERNEST.

WHEN I read the foot-notes to friend Foster's article, I said, "Good for Ernest." With all due reverence and esteem for our friend and benefactor A. I. Root, I do like to see a boy step out of his father's well-beaten path. This, Ernest has done in declaring for horizontal wiring. Of course, he thinks he is right. Here I admire him again. The plan as represented in friend Foster's frame has always seemed to me like "excessive wiring;" and ten years ago I adopted the horizontal plan, and have always wired in that way. I think three wires are better than two, but I have hundreds of frames wired with only two wires; and if numbers add to testimony, I can give you the names of at least 25 within a radius of 25 miles of here who wire in the same way.

I certainly think it has advantages over the perpendicular wires. I think we all agree that foundation should be well fastened at the top; but in cases where it was not well fastened at the top, and with perpendicular wiring, it has slipped down the wires in hiving full swarms on full frames of foundation. This has never occurred with me with horizontal wiring, even with two wires; and as for combs "bowing out," I do not know what you mean; but this I do know: I have 1000 frames wired with two horizontal wires filled with foundation, and drawn into combs; and if any one will show me 1000 better combs on perpendicular wires, I will make him a present of mine. Yet I would recommend three wires equal distances apart. I believe that 25 per cent of the combs I have on perpendicular wires, and the tin bar in the center, are imperfect. Either they are beveled off to the tin or they are not attached. Those who are in favor of "pop-holes" through the combs would be delighted with them. I don't want them. I think if I could not hold my frames together without, I should prefer a piece of wood just like the end-bar to the tin bar.

HOW TO WIRE.

Almost every one has his own way of piercing or drilling the holes through the frames; but after this is done and the frame is put together, lay it flat on the bench and drive a $\frac{5}{8}$ wire nail near the upper left-hand hole, and one near the lower right-hand hole. Have your one-pound spool of No. 30 tinned wire secured in some way so that it will not snarl, yet unwind readily. Now thread the wire through the two left-hand holes back through the center holes, and up through the two left-hand holes, just enough to wind around the partly driven wire nail. Now drive the nail down, thus secur-

ing one end of the wire. Now place the upper end of the frame against a large nail driven into the bench; with the left hand, hold the frame securely against the nail; and with the right hand draw the wires until you spring the end-bars a little; and if you know how to play on a three-string dulcimer, it is in tune. It seems reasonable to me that this arrangement throws the weight on the end-bars, and prevents the top-bars from sagging.

I shall read with interest the replies to your question, asking for facts from those who have used wires horizontally. The above are facts, as observed by me.

GEO. E. HILTON.

Fremont, Mich., Mar. 22.

And I say, friend H., "Good for Hilton." Yes, I heartily agree with you in your thought, that every boy, sooner or later, should have convictions and opinions of his own. A boy who is a complete echo of his father, in every respect, would not be worth very much; and when your testimony comes in to back up Ernest, I am almost ready to abandon my position, and own up. But, how about the following letter from another friend? Read that.

HORIZONTAL WIRING PREFERRED.

TIN BARS NOT ALWAYS OBJECTIONABLE, ETC.

I WISH to indorse what Ernest said in regard to horizontal wires, on page 199. If he will refer to GLEANINGS, 1888, page 685, he will find my wiring-device described, which, if used, will do away with the use of pliers to draw the wires taut. When drawn taut, the wires cut into the wood so that none of them are exactly horizontal. Dr. Mason's objection does not hold good with my manner of wiring, which is described in GLEANINGS, page 33, 1888. Perhaps with a heavy top-bar the diagonal wires and the tin bar are not needed; but with the common frame I should rather use them. I have experienced no difficulty by the bees not covering the tin bar. Not only do they cover it with full-length cells, but they raise brood above them. To make sure about this I have just been to the honey-room to examine the combs.

I have frames wired in several different ways in use, and I get the best combs with my manner of wiring—three horizontal wires, and the diagonal wires and tin bar. The latter are put in after the foundation is put in. I wish no perpendicular wires. When burr-combs are scraped off I often break the wires which show above the top-bar. Perhaps, as A. I. Root says, they could be let down into the wood; but I am afraid that it would not always work just right.

I see that the bee-keepers intend to do away with burr-combs. I sincerely hope that they may. I have used the slatted honey-board extensively, and I can not see that the break joint does away with the burr-combs any more than those made of slats of odd width, although the first season that I used them I thought they would. By the way, I believe one season's success with a hive-fixture does not fully establish its usefulness.

It seems to me that any spacing attachment to the frames, whether of wood or metal, is objectionable, on account of extracting. I believe that staples driven into the brood-nest end are about the simplest spacer we can get; but, do we want frames at fixed distances when not hauling them? I sup-

pose that each one must settle this for himself. At present I am sure that I do not.

I have used hives with $1\frac{1}{2}$ inches for each frame almost entirely in the past, and I am entirely satisfied that $1\frac{1}{2}$ in. is the proper distance from center to center for brood-frames. In the extracting super I wish $1\frac{1}{2}$ -inch spacing. With the hive I use, the difference of spacing is easily obtained, and is no objection. I hope to hear from others in regard to wiring, as that has been somewhat of a hobby with me.

CHAFF PACKING AND DEAD-AIR SPACES.

I was much interested in the answers to Question No. 156. It is a question which I have spent considerable time discussing, and experimenting on. I have hives packed with six inches of chaff, and many packed with four inches; also some with only two inches; and I am firmly convinced that two inches of chaff packing around the brood-nest is a great plenty. Allow me to modestly state, that I have lost only one colony of bees in wintering, in all my bee-keeping experience. That colony died this winter.

I have two hives that have only an inch dead-air space around the brood-nest. The hive is made of good material, and well made. I have wintered bees year after year in those hives, and they have come through strong in numbers and stores. They have never failed to give me a fair yield of surplus honey.

Now, I do not give the hives the whole credit; but I am certain that no packing is needed if *one* or both walls of the hive are close jointed. It seems to me that the same principle applies to hives that applies to houses. However, I shall still pack with chaff or straw, because my hive material is narrow; but in future I shall use only two inches of packing. I use the Hilton chaff hive, and winter outdoors.

Fremont, Mich., Mar. 20.

WM. E. GOULD.

Friend G., I am very glad to have you put in a good word for tin bars. I know the bees do sometimes leave them uncovered; but during a good flow of honey we succeed, usually, in getting bees to rear brood right over them, as you mention; notwithstanding, I should be glad to get along without them if we can. I feel sure that the horizontal wires would do nicely with tin bars, as you suggest; but I am not so certain that the horizontal wires alone are going to answer. See the letter below, from another friend, on this matter.

WIRING FRAMES.

IN FAVOR OF THE PERPENDICULAR PLAN.

I HAVE just read with a great amount of interest Mr. Foster's method of wiring frames, and also your remarks thereon; and if you can find space for a few lines, I should like to add my experience also.

To begin with, I am a great admirer of wired frames, notwithstanding all I continually read regarding the "useless and needless expense" of so doing. It is possible, however, as I have not used any quantity of unwired combs, that I have acquired a clumsy fashion of handling such, that occasionally causes accidents, which do not take place with wired frames, that I can not be induced to go slow enough to prevent, and therefore my adhesion to something substantial.

Well, I have tried all systems in order to make the labor and expense as little as possible; and for vertical wiring I now prefer, and will use no other than eight wires for the standard Langstroth frame. I also use a wire upright, to prevent the bowing-up of the bottom-bar (I don't like the tin bars for the reason you give); and as I use a $\frac{3}{8}$ " top-bar I see no use for the two diagonal wires. My preference for the eight wires is because I have no trouble with wavy combs; and when I limbed a sheet of foundation in such a frame, I know I shall have no further trouble with it.

Often, after having wired until I was tired, I would sit down and think that no other plan would work as well; and you can therefore imagine what a relief it appeared to me when I noticed in the Revised Langstroth that the horizontal plan was a success with them. Accordingly I lost no time in preparing several hundred frames for the past season's use; but instead of putting in only three wires I put in four, thinking that, if three were good, four might be better, and might prevent any bulging or curling of the combs, should there be any tendency in that direction, as I must confess I was a little afraid there might be. The wiring was perfectly done, and all were as taut as a fiddle-string, and, as with all other things that pleased me, I hurried away to show my good wife, whereupon she remarked, "Why, Frank, that looks ever so much nicer, and I think it can be done with half the labor and expense; and if you *will* wire, give this plan a trial at once, for it does seem as though it would work nicely." Now for the result.

I confess I could scarcely wait for the first swarm to come off, so it could be hived on the new frames; and when it did come, the progress was eagerly watched. I found things went on swimmingly with the upper half of the sheet of foundation; but a slight curve would appear between the second and third wire; while between the third and fourth, the bowing was not only quite perceptible, but altogether too much so for me, and, worst of all, the space between the fourth wire and the bottom-bar bore evidence that the foundation was bound to take a trip to the top-bar, so badly was it curved in an upper direction. This one example did not, however, discourage me; but after hiving about a dozen more swarms I concluded some other plan would have to be followed, and I therefore resorted to my old method; but wishing to use these frames, I placed them in the surplus apartment, and found less trouble than when hiving bees directly on them, but still sufficient curving to cause me to dispense with that method until I had received more light on the subject.

Now, friends, can you offer any solution to this difficulty with me? The foundation was made by a practical man, on a Given press, and the hives were all protected by shade-boards, *a la* Heddon. Would the result have been different had the foundation been made on a Root or Dunham machine? or do you think I made a mistake in putting in four wires, instead of three? Any suggestions will be thankfully received through GLEANINGS.

Stratford, Ont., Apr. 15.

F. A. GEMMELL.

Friend G., we can not solve your difficulty, any more than to suggest that the Given foundation may have had something to do with it. We know this, that foundation with good high walls did not trouble nearly

as much by sagging when we used foundation without any wires at all; and I believe that foundation made on the Given press seldom has as high and perfect side walls as we now get by the use of rolls. I tried horizontal wires years ago, but had something of the same experience you have had. I decided they were not what we wanted. With a heavy top-bar, however, and a wire to support them midway, attached to the top-bar, they may answer all right.

IN FAVOR OF HORIZONTAL WIRING OF FRAMES.

I have just read friend Foster's article, on page 193, March 15th, in regard to wiring frames; also Ernest's and your foot-notes to the same. I wish to say I agree with Ernest exactly in regard to wiring frames. If I remember correctly, friend Vander-vort, the foundation-mill man, when I visited him six years ago this spring, was wiring all of his frames horizontally, using four wires to each frame. His frames are nine inches deep. For five years all frames in which I have used foundation have been wired horizontally; and after five years' experience I could not be induced to wire upright. It is too much work, and the tin bars are a nuisance. My top-bars do not sag, and the horizontal wires hold the combs straight and true in the frames. I have hundreds of such frames in use, and they give perfect satisfaction. Friend Root, when you get your mind set you stick "like a dog to a root;" and it seems hard to get you out of a rut without taking a wheel off. Where the foundation is light, running 7 to 8 feet to the pound, it needs four wires; with foundation running 5 feet to the pound, 3 wires are plenty.

GEO. A. WRIGHT.

Glenwood, Pa., March 22.

Very good, friend Wright; but I have read the above carefully twice over to see if you said any thing about the size of your frame. I am well aware that horizontal wires answer nicely for a frame like the Gallup, or even the American or Adair; but my experiments with horizontal wires in the L. frame indicated that the stretch was too long unless there were a support of some kind in the middle. Ten or fifteen years ago a good many of the friends of GLEANINGS threatened to give it up unless I could get over changing my mind so often, and recommending something else. In view of this you pay me a very great compliment. The fact is, I have seen many troubles come from being in haste to change to something else.

WIRING FRAMES WITH STAPLES AND HOOKS.

I think there is altogether too much fussing in Mr. Foster's method of wiring frames with thick top-bars (GLEANINGS, Mar. 15, page 198), so I propose to tell you how I do it. Instead of boring holes in the top-bars I drive double-pointed tacks in the under side, just where the holes would come. The tacks are driven down pretty close, leaving just about room enough for the wire to pass through. After the frame is all wired, and the tin bar sprung in place, the tacks are driven down close, drawing the wire still tighter. Care should be taken that the wire is in the center before the tacks are driven down close. The diagonal wires, after passing through a hole in the upper end of the end-bars, are looped over wire nails driven in

the end-bar, and returned through the hole; then proceed as in wiring an ordinary frame, passing the wire through the first tack, down through the bottom-bar, then up through the next tack, etc., until the frame is completed.

THEO. JENNINGS.

Port Chester, N. Y., Mar. 24.

We have tried the double-pointed tacks to a limited extent. It is true, that, after threading the wires and drawing moderately tight, you can stretch the wires taut by driving the staples further into the wood, and this certainly is a nice feature; but it takes a good deal of time to properly space and drive the staples; and piercing the wood is vastly quicker, and, of course, cheaper. We can thread holes in nearly the same time it takes to thread staples. If I did not use pierced bars I should use wire nails, which, after being driven into wood, are bent with round-nosed pliers into the form of a hook. The wire, instead of being passed through holes, is simply caught on to the hooks. They can then be stretched by driving the nails further into the wood. Dr. Miller wires all his frames thus.

RAMBLE NO. 24.

A VISIT TO THE WESTCOTTS; ANOTHER NOON SERVICE IN A FACTORY.

A FEW of those quiet bee-keepers who are never seen in print reside in Fair Haven, Vt. Mr. Proctor, of this place, made quite a business of raising queens, making foundation, and producing honey. His health failing, he advertised his bees for sale at auction in the spring of 1889; and though the Rambler did not attend the sale he learned afterward that the auction method was a failure. Only a few colonies were sold, at \$4.00 each, thus proving that, even in Vermont, bees in good chaff hives are not in as much demand, and have not the certain value, that is attached to other farm stock.

The person engaged most extensively in honey production is E. L. Westcott. At the time of our call he had over 150 colonies in two apiaries, all in Bristol hives, or a modification of them. His locality is good for raising a fine quality of both comb and extracted honey. Much honey is sold in the home market. The slate industry fills the town with a class of laborers who are free to spend some of their earnings for the sweets of the bee-hive. We find such a class of people better to deal with, and larger purchasers, than the wealthy people. They will buy the cheaper grades of honey, and consume more of it. The senior Westcott is an extensive farmer, and has had a varied experience. The dairy business had been tried, and, after being tied, as it were, to a cow's tail several years, he sold this kind of stock and purchased sheep. Scab, foot-rot, dogs, and cheap wool, caused another change; and at the time of our visit, horses, both fast and slow, were being bred. His pet colt was valued at \$500. Others, we supposed, were getting along to greater value. Experience and sensible methods are employed in his farm operations. Agricultural journals are of little value. *The Cultivator* had been taken thirty years; and the only idea of value learned in all that time was how to break up a sitting-ben. Put a chestnut-burr in the nest, and it is

a sure remedy. The hen dislikes to sit on it; and when she gets uneasy, the burr goes with her, and she becomes so disgusted with this sort of egg that she gives up sitting. Our stop was short but very pleasant with the Westcotts.



THE BLACKSMITH WHO OWNS THE RICHES OF THIS WORLD AND THE WORLD BEYOND.

After leaving them we met an old friend, who, many years ago, wielded the blacksmith's hammer in our native town. He is now a resident of Troy, N. Y., and has accumulated a fortune of several hundred thousand dollars, in the collar and shirt business. Meeting him was like meeting the breezes of sweet perfume from the sunny land.

"Why, no, friend Rambler," said he, "I never expect to die. All who believe in the Lord Jesus will not die. There will be only a change of existence. We shall only be called up higher." This man is not only ready to testify to the light within and to the hope beyond, at all times, but conducts his large business upon a Christian basis. His large factory, employing over one hundred people, of both sexes, is open to the influences of the gospel. A noonday prayer-meeting is held, and occasionally an evangelist is called in to speak to his people. He is interested in the welfare of all who work for him, from the best to the most humble; and it is needless to say that there are no strikes nor discontent in that establishment; and from what I have learned of him in Troy, Mr. Justus Miller, who started life an humble blacksmith, is universally respected by the good people of Troy. That there may be more such business men is the earnest wish of the

RAMBLER.

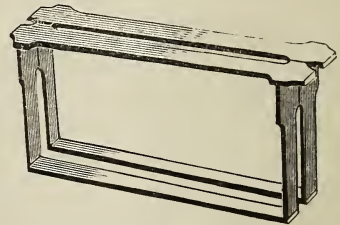
Friend R., it is rather pleasant to know that you have visited that great collar factory in Troy, N. Y. A niece of mine married a "runner" for this establishment; and as they recently paid us a visit I happened to know something about what you have been telling us. Surely, "godliness is profitable to all things." I am sorry to add, however, that, although the relative of whom I have been speaking commands a salary of several thousand dollars, and at the same time speaks with pride of the great business his employer has built up on such principles, he has not seen fit to put his trust in the "Lamb of God that taketh away the sin of the world."

THE HOFFMAN FIXED FRAME.

SOME OF ITS ADVANTAGES IN POINT OF CONVENIENCE; A GOOD THING.

As I have had considerable experience with different styles of brood-frames, and in moving bees during the past ten years, perhaps you would like my opinion in regard to the frame I use. After using the ordinary style, and the closed end, and modifications of each, for some years, I finally settled down on the Hoffman frame, and discarded all others. This compelled me to lay aside about 2000 frames which I had in use, and I have never regretted doing so, having yet to find a frame that suits me as well as the Hoffman. I prefer it for the following reasons: It is as firmly held as a closed-end frame, and yet is more easily manipulated. We can pick up and handle two, three, or four of them at a time, without jamming or bruising them in the least, and move any number of them to any part of the hive at one movement as easily as one. To illustrate: If we wish to take out a frame from the center of the hive, push a blunt knife down beside the frame wanted, and shove all the frames over a little at one movement; then we can lift out our frame with ease, instead of moving each frame a little.

One great point with these frames is, that, owing to their partly closed top and thick top-bars, but very little brace-comb is built above them; this is a great convenience. They are more easily covered with a quilt to keep the bees from going above. No bees can get into the rabbet to glue the frames down. They are as easily separated as the ordinary frame. They are always perfectly and accurately



THE HOFFMAN FRAME.

ly adjusted. We never have to go over the frames to space them right when we are ready to close the hive. We can pick up the hive at any time, and carry it about in any shape or position, and the frames will never move, swing, or rub against each other. It possesses all the good qualities of the closed-end frame, combined with the advantages of the hanging. To work nicely you can use a division-board or follower, which is removed first to give room to manipulate the frames—ten frames and the division-board nicely filling the Simplicity body; but we manipulate them nicely without this division-board.

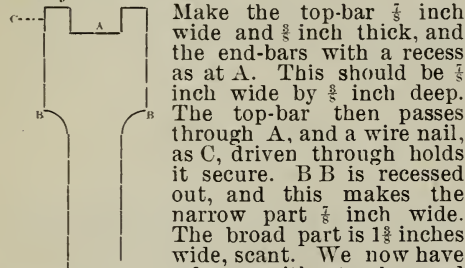
Practical working will show many more advantages and good features of this style of frame.

Oneida, N. Y., Jan. 10.

EDWARD B. BEEBEE.

You make a big point for the Hoffman frame, friend B., regarding the facility with which all of them can be shoved over at once to give room for the central or any other one. All fixed frames possess this feature to a certain extent, but not as perfectly. With ordinary hanging frames it is usually necessary to finger (i. e., space back)

nearly all the frames in the hive in the honey season, to get room to properly remove the central one; then after they are all put back, each one must be spaced over again. I have just one fault to find with it; and that is, its expense. In thinking the matter over, I find we can retain all the advantages you name for it, and yet cheapen it by nearly a half. If the end bars have projections there is no need that the top-bar have similar jutting points. The top-bar in the Hoffman, as illustrated above, costs nearly as much as the rest of the frame.



Make the top-bar $\frac{1}{4}$ inch wide and $\frac{3}{8}$ inch thick, and the end-bars with a recess as at A. This should be $\frac{1}{4}$ inch wide by $\frac{3}{8}$ inch deep. The top-bar then passes through A, and a wire nail, as C, driven through holds it secure. B B is recessed out, and this makes the narrow part $\frac{1}{4}$ inch wide. The broad part is $1\frac{1}{8}$ inches wide, scant. We now have a frame with a top-bar and bottom-bar of $\frac{1}{4}$ -inch stuff, and only the end-bars of wider lumber. But, how about burr-combs? We can use a thick bar if we choose, just as easily as not; or, what seems to me would be better, a double top-bar, as was illustrated on page 204. The Hoffman frame, made as I have said, with double-bar, ought not to cost more than \$2.00 per 100; or, without the extra bar, \$1.75 in the flat. I omitted to say, that this frame should be used on tin rabbets, to be used to the best advantage. Now, while this frame may seem to be the thing, don't go and order a whole lot of them without first trying eight or ten hives of them at first, if you like them. It is possible there may be some serious objection to them, so let's go slow. But, hold! Here is another friend who is very enthusiastic over them: E. R.

THE HOFFMAN FRAME.

I use a hive that resembles your new Dovetailed hive in principles and some features, same dimensions, 8 Langstroth frames. From experience I know that the new hive would suit me better than any I have seen, and I have at least seen and examined closely every hive that has been before the public, with the exception of Mr. Heddon's new hive, composed of shallow cases. There seems to be but one feature lacking in the Dovetailed hive; and that is, a frame suited to the business for which this hive was designed; viz., convenience in handling and shipping, and adaptability to out-apiaries where the hives have to be moved from place to place frequently. As I said before, I have handled many hives of bees during the past 12 years, in all kinds of hives, and with all conceivable kinds of frames and fixtures. Of all I have seen, none ever suited me quite as well as the Hoffman-Langstroth frame, introduced to the public by Mr. J. H. Nellis, in *Bee-Keeper's Exchange*, Vol. I., No. 3, Mar., 1879.

This frame I have had in use from that date to the present time, and am more than pleased with it, and think it embraces more desirable points than any thing else I have ever seen. I find in the use of this frame very little trouble from brace-combs,

a point which I see is under discussion—never any thing of that description unless the space above brood-combs was more than $\frac{3}{8}$ inch space. The top-bar of the frame is about $\frac{3}{8}$ inch thick.

Now, friend Root, I have no ax to grind; but I would suggest that you try a few frames; and if they don't suit, why, let them go along with other discarded traps. I never have found any thing so convenient for handling a full colony of bees as this frame, in looking for queens and handling combs. The most that can be said against this frame is the expense. For moving bees from place to place, and have them bear rough handling, they are simply perfect. I use them with plain wood rabbets. ADIN STONE.

Vienna, N. Y., Feb. 8.

Is there any one else among our readers who has tried these frames?

FURNITURE NAILS AS DISTANCE-KEEPERS.

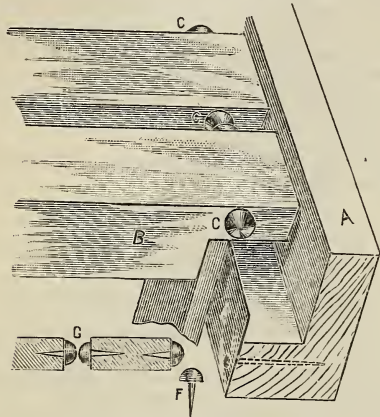
FURTHER SUGGESTIONS FROM N. T. PHELPS.

YOU have put your thumb on communications in regard to thick top-bars, and I expect in the next issue of GLEANINGS to see that you have put your other thumb on distance-keepers. There are, however, many suggestions that might still be made in regard to distance-keepers that will be of use to some portion of your readers. If thick top-bars and accurate spacing are to be used to prevent brace-combs, some sort of distance-keeper is necessary. It will take several kinds to please all, just the same as it does with every thing else. Some will like your castings best; some, staples in the top-bar; others, staples in the rabbet, and so on. Now, I could not tolerate staples in the rabbets, because I frequently, in spacing frames, shove or slide half a dozen or more along on the rabbets, to the position they are to occupy. In looking over combs I replace them in the side of the hive toward me; and when the furthestmost one is looked at I shove all back into their place at one push. Every one has his mode of management, and so will see some objection to any keeper. Those working for comb honey will find some distance-keeper especially convenient, and careful extracted-honey producers will not be very much afraid of a little metal on the extreme corners of their frames. There are some who do so much more business than the rest of us, and do it with such a rush, that any kind of projection, especially a metal one, will be objectionable on their extracting-frames.

In order that all may choose a distance-keeper to suit themselves, the writer would like to suggest a cheap article that can be used, a sample of which I forward with this article. They can be bought for at least \$1.75 per 1000 at retail, making them cost about seven-tenths of a cent per frame. This, I should think, would be cheap enough to satisfy nearly all; and if they are placed at the extreme end of the top-bar, it looks as though it would make a pretty good "careless man's" distance-keeper. With the thick top-bar, and the keeper placed at the extreme end of the bar, please observe the distance from it to any honey to be uncapped.

These are well adapted to the thick top-bars that are plump one inch wide, and are to be spaced exactly five-sixteenths of an inch apart. They will be

excellent to use where one wishes to try a few thick bars by reinforcing some of the ordinary bars already in use, with strips of veneering. They can be used on all four of the corners, when they will cost about $1\frac{1}{16}$ cents per frame. They are called "furniture nails," and are No. 9. Be sure to get No. 9, if you wish to space five-sixteenths of an inch apart. Other numbers will space slightly closer. I want to ask Dr. Miller to try a few of them on his



PHELPS BRASS SPACERS.

veneer-reinforced frames, and tell us how he likes them for moving bees. They can be pushed in by making a wooden punch with a concave end, and need not be struck so as to jar the combs at all. Small wire nails to fasten on the veneer can be pushed in in the same way, and no driving or jarring of the frames. If the uncapping-knife should strike these brass heads it would not injure it much, and it would have to hit pretty close to the frame to catch on to the nail at all; so the danger of dulling the knife is small.

In closing I wish to say that there is no patent on it, and all criticisms will be taken as a matter of course, and I shall not pose as a martyr if somebody happens to have thought of them before I did.

Kingsville, O., March 10.

N. T. PHELPS.

Here is what C. C. Miller says of them, who writes to us after receiving samples, accompanied with a letter from friend Phelps:

I must say that these furniture nails of Mr. Phelps strike me *very* favorably. Have your castings any advantage over them except the single one that they make a fixed distance from center to center of top-bar while these nails make a fixed distance *between* frames? After all, the latter is what we want. These can be more easily applied to frames in use. In fact, you don't need to shake the bees off.

In reply to friend Miller's question I would say that the Van Deusen have the advantage of being reversible and a little more stable. The round smooth heads of the furniture nails would be liable to slip by each other when pressure is exerted. In point of cheapness, the brass nails can hardly be beat, unless by the staple first suggested by Mr. P. on page 98. Yes, both of his arrangements can be used on frames already in use. No, it is not even necessary to shake the bees off. The round-headed

nails could be easily driven home with a kind of wooden pliers that might easily be extemporized for the purpose, and thus do away with all jarring from pounding. After all, it is hard to say whether any or all of these spaces will be accepted by bee-keepers. But there is a growing demand for fixed distances; and with the arrangements that have been suggested we can all experiment and decide for ourselves this summer. While I am about it I might say that the thick top-bars which we are making are like B, shown in the cut, without the spacers, the end-bar being nailed on as shown. F is a reduced figure of the nails. The heads are of polished brass. C shows how they come in contact. E. R.

FIXED DISTANCES.

THE NEED OF THEM, ETC.

LAST year there were several parties who wanted me to look over their bees. I found them in every conceivable shape—some in Langstroth hives, spaces cut in hives for frames to rest in, some with slots cut at fixed distances, some in home-made hives, with no spacing. I found, in some hives, frames touching each other; others, two inches apart. One man with seven swarms had not a single straight comb in the hives that could be spaced. Under such circumstances it would be impossible to handle successfully, or to space up combs the proper width, or to put such frames in hives that are spaced.

On page 172 of GLEANINGS (frames at fixed distances), I have tried that plan without success. The article on p. 199 is just as bad, as they both hold frames at fixed distances in the hive. My experience is, that all spacing must be on the frames. The article on page 98 illustrates my plan exactly, such as I use in my hives, and some of my neighbors have taken up the same plan. My frames are all spaced with staples which are driven in exactly like the engraving on page 28, leaving the staples just $\frac{1}{4}$ of an inch out of the wood; and in addition to this, at the center of the bottom-bar, I nail on a small block, $\frac{1}{4}$ in. thick, $\frac{3}{8}$ wide, and one inch long. This gives the exact width from center to center, $1\frac{1}{8}$ or $1\frac{1}{16}$, and exactly $\frac{1}{2}$ inch between frames. As you will perceive, they can be spaced any width that is needed to suit the notion of some; i. e., that bees want more space in winter, but can not be closed together less than the required space, and no bees can be jammed in closing the frames. By placing a dummy-board at one side, and keying up, the hive can be turned completely over without moving a frame or injuring a bee. The additional cost to each hive is two cents. D. NOBLE.

Clintonville, Wis., Mar. 31.

Quite possibly you are right, friend N., in saying that we want the spacers attached to the frames and not to the rabbets. In buying up bees last spring I noticed just the kind of spacing you describe. If beginners *need* spacers, and many veterans are either using fixed frames or desire them, it is time we were giving the matter thoughtful consideration. I am glad to hear that you like the staple. Do you find that they interfere seriously with the uncapping-knife?

APPENDIX TO THE A B C OF BEE CULTURE.

For the 42d Thousand.



Again I have called upon our friend and correspondent, Dr. C. C. Miller, of Marengo, Ill., to review this edition, just before the final form goes to press. It is to be observed, that he has commented on some things in the body of the work, and suggested some of the later developments which have come up since some of the forms were printed. These latter, though promising much, should be put in the appendix because they have not been sufficiently tested to warrant giving them such prominence and indorsement as the body of the work gives to devices and methods that have been most thoroughly tested. I have also made some additions. His matter will appear in solid type, while mine will be, as usual, like this. The doctor begins as follows:

PAGE 4.—AFTER-SWARMING.

Perhaps it is not best to leave entirely out of sight the old-fashioned way of returning all swarms that issue when no more swarms are desired. It is a troublesome, but entirely effectual way, if persisted in, and was practiced with box hives before the advent of the movable comb. All that is necessary is to put the swarm back into the parent hive as often as it issues; and when only one young queen is left alive in the hive, the swarming will cease. Sometimes putting back an after-swarm once is all that is necessary.

PAGE 12.—ANTS.

There is a kind of large black ant that may be specially mentioned. These ants are troublesome, and sometimes even dangerous. They burrow in the wood of bottom-boards; and I have seen a bottom-board that looked sound on the exterior, so thoroughly riddled by these pests that a very little touch would make it crumble. Think what a time you might have, if such a bottom-board should crumble while being hauled on a wagon!

PAGE 13.—APIARY.

One objection to any apiary made symmetrical in form, no matter how beautiful in appearance, is, that the bees do not so readily find their homes when they have no distinctive landmarks. On this account some think it well to plant trees, if none are already growing; and a studied irregularity in their positions—copying after Nature's planting—makes each spot in the apiary

different from every other spot, so that no bee need have any difficulty in going with unerring certainty straight to its own home. A natural linden grove is a fine site for an apiary. Instead of being placed in the center of the apiary, workshops are nowadays generally placed to one side. One reason for this is, that it is not always convenient for a team of horses to be driven into the center of an apiary to reach the shop.

PAGE 20.—MOVING WHOLE APIARIES NORTHWARD.

Within the past few years some progress has been made in this matter, and it now seems that those who have had sufficient experience may successfully bring bees from the South to the North in time to profit by the clover and basswood. Byron Walker, of Capac, Mich., can not successfully winter his bees, on account of unwholesome food gathered in his locality, and he has made a practice of buying up bees in the spring in the South, and transporting them by rail to the North.

PAGE 26.—ARTIFICIAL SWARMING.

Since the increase of out-apiaries, advantage has been taken of the fact that, when a frame of brood and bees is taken a considerable distance, the bees will stay wherever they are put. Suppose you have a hive full of combs, each comb having a queen-cell, as explained already. If this hive be taken to an out-apiary, each comb with its queen-cell and adhering bees may be put into a separate hive, the hive then filled with frames of foundation; and, if done early enough in an extra good season, each nucleus thus formed will grow into a good colony during the course of the season, with no further care than to see that it has succeeded in getting a laying queen. It is better, however, to take along, at the time of hauling away, a second hive full of brood and bees, but with no queen or queen-cells, and give to each nucleus one of these combs with adhering bees. Then you have a fair chance of success in any ordinary season.

For those who use large hives, and work for extracted honey, there is a very simple way to double the number of colonies, which has worked well in the hands of some. When the time comes for surplus storing, put a queen-excluder on the hive, and on this put a second story filled with frames of foundation, or, better still, empty comb, then a third story also filled in the same way, except that you place in the third story one or two combs of brood taken from the lower story, together with the adhering bees.

Some young brood and eggs should be in the comb or combs of brood placed above. Be sure that the queen is left in the lower story. Let there be an entrance in the upper story, not necessarily very large. In about three weeks a young queen will be laying above, and at the close of the harvest this upper story will contain a strong colony, which may be put into a separate hive, and a bottom-board may be put under it, so as to stop all communication with the lower story.

PAGE 30.—BARRELS.

At present the square tin cans described under EXTRACTED HONEY are preferred to barrels for shipping, as being cheaper and in some respects better.

PAGE 38.—HOW TO KEEP EMPTY COMBS.

When combs are left in spring, after the death of the bees in a hive, there is no safer place to put them than in the care of a good strong colony. Brush off the dead bees and put the combs in a clean hive on the stand of a strong colony, and then place the colony *over* this hive of empty combs, so that they will be obliged to pass through the hive of combs to go in or out. In other words, give the bees no entrance, except that of the lower hive, allowing free communication between the two. The combs will be kept free from worms and mold, with no care whatever on your part, except to keep the entrance so small for two or three days at first that robbers shall not trouble.

After the weather has become warm, three or four stories of empty combs may be piled on the top of a hive containing a colony, with a queen-excluder between, and a frame of brood in the upper story to make sure that the bees traverse all the combs.

PAGE 56.—SWEET CLOVER.

It is now well established, that cattle do *sometimes* eat sweet clover green, although some say it is objectionable as pasturage. Prof. Tracy, of the Mississippi Agricultural College, speaks highly of it as a hay plant, but says, as do others, that stock must *learn* to eat it. Livingston's catalogue says it is "quite valuable for soiling." Its general character as a good honey-plant is well established, and it may be well worth while to give it a thorough test as a forage-plant.

PAGE 64.—WIRING BROOD-FRAMES.

If thick top-bars come into general use, as now seems possible, the necessity for diagonal wires and center-bars of folded tin will disappear. Indeed, even with a top-bar only $\frac{3}{8}$ thick, the diagonals and folded tin have been by some dispensed with. This saves turning the frame over to fasten the wires on the second side.

PAGE 65.—STARTERS FOR SECTION BOXES.

Many bee-keepers want the starter to fill the section as nearly as possible, leaving a space of only $\frac{1}{4}$ or $\frac{3}{8}$ inch at the sides and bottom. Even with so large a starter as this, the bees sometimes fail to fasten the comb at the sides and bottom. It is especially desirable to have it fastened at the bottom, to prevent breaking out in shipping; but even if long enough to touch the bottom, the bees do not always finish it

down. Perhaps a safer way is to fasten a starter at the bottom, $\frac{1}{2}$ inch wide or deep; then fasten at the top a starter $3\frac{1}{2}$ inches deep. This makes a sure thing of having the comb fastened to the bottom-bar. Such starters properly fastened with a Clark fastener have been safely hauled on the trot to an out-apiary. If cut $3\frac{1}{4}$ instead of $3\frac{1}{2}$, the swing, and the consequent liability to fall out, would be much greater.

PAGE 66.—FASTENING FOUNDATION STARTERS WITH THE CLARK MACHINE.

Instead of using a small paint-brush to moisten the presser-tongue, make a little paddle, say 8 or 10 inches long, $\frac{1}{2}$ inch thick, and 1 to $1\frac{1}{2}$ inches wide. Nail upon one side of it a piece of felt, or two or three thicknesses of old soft cloth, equal to the length of the presser-tongue, then whittle off the handle end, saturate the cushioned part well with salt water, renewing it if it should get dry. To moisten the tongue, lay your paddle under it, press with the feet just as when fastening in a starter, and then throw the paddle in your lap till needed again. This takes less time, and is more thorough, than to use the brush. You may need to moisten the tongue for each starter, or you may need it only after fastening several starters. It is a good plan to have a little tin dish of salt water in which the tongue may be so set as to keep in soak over night, so as to be in good trim for next day's work.

PAGE 68.—THICK TOP-BARS VERSUS HONEY-BOARDS.

The year 1889 started a very full discussion of the means of preventing brace-combs above brood-frames, and it transpired that quite a number had for years succeeded in preventing brace-combs, without any honey-board. Some claimed partial or entire success with top-bars $\frac{1}{2}$ square; some with top-bars $\frac{3}{8}$ thick, but wide enough to leave only $\frac{1}{4}$ inch space between them, while some laid great stress on the matter of keeping a very small space between top-bars and sections. In general, bees build brace-combs above or between top-bars, if too much room is given; and if too little is given, then the space is apt to be closed entirely. Taking all the evidence brought together, and sifting it out, there is at least great reason to hope for immunity from brace-combs by attending to the following requirements: The top-bars must be at least $\frac{3}{8}$ thick, and the space between the top-bars, as also the space between top-bars and sections, or whatever is immediately over the top-bars, must be, with some exactness, $\frac{1}{8}$ of an inch. This necessitates a top-bar of greater width than some would otherwise prefer. If the top-bars are spaced $1\frac{1}{2}$ from center to center, then, to have the space between them $\frac{1}{8}$, their width must be a little more than an inch. The year 1890 will probably settle the whole matter very conclusively, for so much attention has been given to it that doubtless thorough tests will be made by a great many. Notwithstanding the great usefulness of the slat honey-board in the past, it will be quite a step in advance if it can be laid aside. It will save expense, time, and trouble; for, no matter how clear of brace-combs the honey-

board may be on the upper side, there will always be found plenty of them between the honey-board and the top-bars, if the top-bars are not right. It is among the possibilities, that some device for keeping combs at fixed distances may come in vogue.

PAGE 69.—MEETING OBJECTIONS TO THE T SUPER.

Those who are advocates of the T super, meet two of the three objections in this way: If a T tin be put between the sections at the top, directly over those below, it is obvious that the spaces between each two rows of sections will be filled up, avoiding the large deposit of propolis sometimes made between the sections, and at the same time holding the sections perfectly square. This, however, will leave on the tops of the sections a line of propolis at the edge of each flange of the T tins, and this is worse in appearance than the same amount of propolis at the corners of the sections. A better and cheaper way is to use, in place of the T tin on top, a small wood separator about $\frac{1}{4}$ inch wide, and as long as the T tin.

To the charge that it is not easy to make the outside and central rows of sections change places so as to get the outside ones finished up, the reply is made, that, when the central sections are finished, they should not be moved to the outside rows, but taken out of the super, and that, when all but a few outside ones are finished, the super should be emptied and the unfinished ones put back.

PAGE 71.—GETTING BEES OUT OF SECTIONS; CAUTION.

Until you have had some experience, perhaps your safest plan is, never to set a super of honey by the hive. Sometimes it may be safe to let it stand there all day when the bees have more than they can do on the flowers; but, again, all at once it may start the bees to robbing, and demoralize them generally.

PAGE 74.—EMPTYING T SUPERS.

The machine for taking sections out of T supers, as shown on page 74, although its use is easily understood, is somewhat difficult to make. It requires nice adjustment to make it so that the super may instantly be placed exactly right over the bearing-board. The sections can be taken out with no other apparatus than the bearing-board, and, indeed, at times this is perhaps the better way. The operation is as follows: Place over the super a board about the size of the super—a flat hive-cover will do. Now turn upside down both super and board held together, making the super now rest on the board. Place this on a hive or box so as to raise it a foot or less from the ground. Place the bearing-board on the sections; press your weight on the center of the bearing-board, and then pound gently about the edges of the bearing-board until the sections settle down the quarter inch or so; then, placing the right knee on the middle of the bearing-board, lift the super rim off the sections. If this is done in warm weather when propolis is soft, it will not be as easy as it reads to start the sections out of the super. Propolis, when warm, has

that aggravating quality that it will not be hurried, and you may pound hard enough to break the sections without starting them; but if you let them stand *long enough* they will fall by their own weight. So take it easy; turn around and sit down on the bearing-board, and meditate on the blessings you enjoy; and when you have sat and rested about as long as would be necessary to pound the sections loose with cold propolis, you will find that your sections have dropped without your noticing it.

PAGE 76.—USING UNFINISHED SECTIONS FOR BAIT.

Serious objection has been made to using as bait, or in any way putting back on the hive a section containing the least bit of honey left over from the previous year. The old honey is said to affect the new, and the empty comb is just as good for bait as if it contained some honey. In fact, the bees often, if not generally, remove the old honey before putting in new. Either let the bees empty the sections in the fall, if you want them for bait, or extract them and then let them be thoroughly cleaned *by the bees*. Better use up, as under the head of **SELLING FOR LESS MONEY**, all sections that have enough honey in them, and let the bees clean out in the fall those having less honey, and you will probably have enough for bait.

PAGE 76.—SEPARATORS.

Experience says, "Never use tin separators loose, as in T supers; and never use wood separators where they are to be nailed on, as on a wide frame. The objectionable curling of wood separators occurs only where they are nailed on, when shrinking and swelling makes them curl. Where placed loose between sections, as in the T super, the tin separator troubles by bending endwise, while the stiff grain of the wood prevents this, and, not being nailed, the wood separator can shrink and swell without curling, even if very thin. A *very* thin wood separator will not last many years, because the bees will gnaw it; but since they are made now so cheaply that it is economy to throw away the old glued ones and buy new each year, it may turn out that even as thin as 30 to the inch may be preferred. It is a fact, that a very thin separator is much tougher in proportion to its thickness than a thick one, because the grain of the wood does not break in slicing very thin.

PAGE 78.—NARROW SECTIONS.

One bee-keeper protests vehemently against saying anything to encourage beginners in trying a variety of sections. He at one time, as an experiment, used sections of five different widths, and says no one who has not tried it can imagine the resulting annoyance. The beginner is pretty safe to adopt the one kind that finds favor with the majority of experienced bee-keepers.

PAGE 138.—T SUPERS ON DOVETAILED HIVES.

It was at first thought that it would be somewhat objectionable to use on the Dove-tailed hive a T super shorter than the hive. But it is found that they have been thus

used for years; and the question is even raised whether there is not an advantage in it. In very hot weather, when bees hang out at the entrance in clusters, if the super be shorter than the hive, so as to allow a space of $\frac{1}{4}$ inch at the back end for ventilation between the hive and super, the bees in such a hive will not be found hanging out. A curious thing is, that the bees never use this ventilating space as an entrance. If desired, this space can be closed by laying upon it a little pine stick, or the stick can be nailed upon the super by any one who prefers never to have the space open. Whether it be desirable or not to have the super shorter than the hive, the advocate of the T super says: "There are two things settled upon as standard—the L. frame and the $\frac{1}{4}$ section. Both of these I must have, and I must have the best thing to hold each; and if they are not exactly of the same length, I'll adapt them to each other the easiest way I can. I have used T supers by the hundred, shorter than the hive, with no difficulty, and just for the matter of looks I do not propose to be satisfied with any inferior surplus arrangement in place of what I believe to be the best at present known, the T super."

PAGE 274.—PREVENTION OF SWARMING.

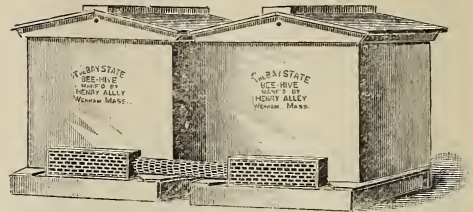
As mentioned in Doolittle's comment No. 80, Hetherington, Elwood, and some others, have practiced caging or removing the queen during the honey harvest. Of course, no swarm will issue regularly without a queen in the hive; and if no cells are allowed to hatch, the prevention is accomplished. When the harvest has commenced, before giving the bees a chance to swarm, the queen is caged in the hive, or, perhaps, preferably given to a nucleus. If queen-cells are not already started they will certainly be started on removal of the queen; and if the queen is caged they will just as certainly be started in a short time. In any case they must be cut out before any possible danger of hatching out. If all cells are destroyed at the time of removing the queen, then a second time, eight days later, and a third time eight days later still, there will be no possibility of any swarming. The advocates of this plan claim that the bees that would be raised from eggs laid at the time during which the queen is caged or removed would be too late to be of any service in gathering the harvest, hence only consumers.

On the other hand, there are those who question whether the bees work just as industriously without a laying queen in the hive. One difficulty about the plan is, that it is about impossible to be sure that no queen-cell has been missed; and a missed queen cell gives rise to very undesirable complications.

PAGE 276.—AUTOMATIC SWARM-HIVING.

Henry Alley has invented an arrangement that is intended to have a swarm of bees in an empty hive, and set them to work all right, even if no one is within a mile of them. A properly shaped queen-excluder connects the entrance of the hive containing the colony with the entrance of the hive

to receive the swarm. When the swarm issues, the queen can not get through the per-



THE ALLEY AUTOMATIC SWARMER.

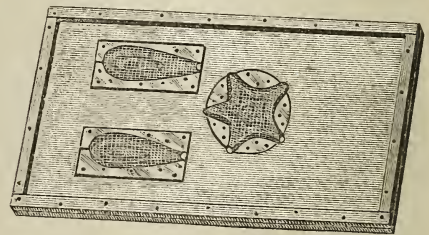
forated zinc, but can easily get into the empty hive, where she will be found by the returning swarm.

WOODEN BROOD-COMBS.

Brood combs of wood have been invented and manufactured by a Mr. Aspinwall, of Three Rivers, Mich. Cells of the proper width and depth are bored by a nicely adjusted gang of drills, and the whole coated with beeswax. The claim made for such combs (and they have been sufficiently tried to show that bees will accept and use them) is, that it makes a sure thing of having the brood-nest entirely filled with worker comb, there being no possibility of raising any drones, and that without drones no swarming will occur. It is asserted, however, by others, that absence of drones will not prevent swarming, and that drones may be admitted from other hives. As yet these combs have not been tested by a great many, and the difficulty of making any but one size stands in the way of any general testing.

PAGE 72.—RIDGING THE SUPERS OF BEES.

The Dibbern bee-escape, an engraving of which appears below, promises much. The cones, instead of being perpendicular, as in the Reese, are horizontal, so that they do not stick out in the way of the sections.



THE DIBBERN BEE-ESCAPE.

The horizontal escape is now being made so that it will drop down into a hole in an inch board, leaving both surfaces flat. We have tried it to a limited extent, and find that it will work very nicely. Its chief advantage, however, will be found in extracting. The escape is put between the body of the hive and super in such a way that the bees will pass downward into the brood-nest. If the escape be put on at night, the next morning there will be no bees, or, at most, very few.

on the combs. To extract, put a number of such bee-escapes on each hive the previous evening. Next morning remove the supers, or hives containing combs of sealed honey, and replace them with hives or supers of empty combs, then take the filled supers to the extracting-house, and extract them at your leisure. Observe that, with this plan, there is no smoking, shaking, nor brushing of combs, no stings, and no interference with the work of the bees. One bee-keeper, who tried it in 1889, pronounced it the "poetry of extracting."

ALFALFA, OR LUCERNE (*Medicago sativa*). At the present writing, May, 1890, there is considerable difference of opinion in regard to this plant, especially in reference to its adaptability to the average soils of the different States. In the great deserts of the West, California, Arizona, Idaho, and wherever irrigation is depended upon to raise crops, alfalfa is the great honey-plant—perhaps one of the greatest in the world—certainly *the* greatest for artificial pasturage. In the Great American Desert, where the weather is always favorable for the flight of bees, and where alfalfa is grown in fields of thousands of acres, the bee-keeper can hardly ask for any thing more. The irrigation needed to grow it for forage, makes the crop almost certain. As it is cut many times during the season, there is an almost constant yield of honey in the range of the bees' flight. We have reports already of not only honey by the *ton* but honey by the *carload*; and the quality is probably equal to any thing that the world has ever produced from any other source. In fact, it resembles so much a fine article of white-clover honey that it will probably sell in almost any market as clover honey, which, in fact, it is, as alfalfa is a species of clover. The cuts are copied from V. H. Hallock & Sons' (of Queens, N. Y.), seed catalogue for 1890. The large one, giving the size of the root, the way in which it grows deep in the soil, is probably exaggerated, although such plants may have been grown in the loose sandy soils of the desert.

We have tested the plant on a small scale on our own grounds, but gave it up, as it did not seem to bear honey with us. Very likely, however, it is because the amount planted was too small, and may be because other sources furnished so much honey at the same time, that the bees did not notice it. It wintered over without any trouble, and gave a considerable amount of foliage. In digging a cellar for one of our new build-

ings, a bed of it was torn up; but we found the roots down three or four feet in the soil. We have tried since, and it stands our winters here in Ohio without any trouble. We gather the following in regard to its cultivation, from a little pamphlet published by Hallock & Sons, 1889: It is better sown in drills, and cultivated, unless the land is



ALFALFA, OR LUCERNE, SHOWING THE WAY IN WHICH THE ROOT GOES DEEP IN THE GROUND, SEEKING FOR MOISTURE.

quite free from other seeds, and is in very fine condition. It can, however, be sown broadcast, the same as other clovers. In our locality it should be sown in the spring, or at least a sufficient time before fall so it may get root enough to stand being thrown out by the frost, especially if the ground is

clayey. After it gets a good start it can be cut every four or five weeks. It should be put on rich land, well drained. It will not stand too much water. This is indicated by its preference for the desert wastes in



ALFALFA BLOOM AND FOLIAGE.

the rainless regions. Some writers tell us that there should be a depth of soil above the rock, ten or fifteen feet, and some go even so far as to claim that the roots will go down in search of moisture as much as twenty feet. If sown early, and a good stand obtained, it may be cut the first year. The second year it yields two cuttings, and afterward three and four cuttings, in a season. It has been grown successfully in Wisconsin, but no report has been made of honey obtained from it there.

It yields from three to five tons per acre, and some reports go as high as eight or ten tons. It gives from three to five cuttings to the season, and, under favorable circumstances, even six or seven have been made. For drill planting, 10 or 12 lbs. of seed per acre is sufficient. For broadcast, however, 15 or 20 lbs. is better. For the best hay it should be cut when blooming commences. If raised by bee-keepers, however, they will prefer to leave it until the bees have made a pretty good crop of honey from the bloom.

The hay is said to be better, however, when cut about as soon as it is in full bloom. All kinds of stock, even poultry, take to it with avidity at first sight. For soiling purposes it is probably unequaled, especially if cut and wilted two or three hours in the hot sun. Thus a supply may be kept for morning, noon, and night feeding. Working animals will get along with very little grain when supplied in this way with alfalfa. Nothing gives better results for milch cows. Pigs, lambs, and colts, are very fond of it, and thrive when so fed. It may be grazed moderately, but heavy close grazing will destroy it. Properly managed, it will yield honey crops for 40 years. We are told that there are heavy fields of it in South America that have been growing continuously for centuries. It has been tested by the States more or less for perhaps 50 years past. From the fact, however, that it has been mostly abandoned, except in the great West, I am inclined to think it will not come into general favor unless under very favorable conditions, or because it yields honey as well as hay.

Some writers claim that the amount of rain we have here would be fatal to it during the majority of seasons. Others say, however, that the rain will do no harm, providing the land is thoroughly underdrained. It is quite certain, I believe, that great quantities of seed have been sold by seedsmen at enormous prices, because of exaggerated accounts given in the seed catalogues—that is, exaggerated in regard to the great depth to which the root grows in ordinary soils, and also in regard to its adaptability to all localities. At the present writing, the seed is worth with us about \$7.50 per bushel; but we see it advertised in the Pacific States as low as three or four dollars a bushel. The price of the seed will, however, probably be very soon equalized, to the advantage of both parties. In rainless regions, where irrigation is depended upon, there is none of the difficulty in growing it perfectly that we have here. On this account it has been suggested that alfalfa hay may sometimes be shipped from the Great American Desert to Chicago, and possibly other points, cheaper than hay of equal quality can be produced in regions where rain is plentiful.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PAINTING SHIPPING-CASES: SCRAPING SECTIONS.

Is it customary or advisable to paint shipping-cases? If so, what color?

If I could get careful boys or girls to scrape sections ready for market—those who would not stick the knife or their fingers into the cappings, how much per hundred would it be worth, including dinner and supper, say half board?

I had eleven colonies, spring count, and increased to 33. I took 900 lbs. of extracted and 500 lbs. of comb honey; that would be 127½ lbs. per colony, and I had left from 30 to 40 lbs. in each hive.

Durango, Ia., Mar. 3. J. M. WOODHOUSE.

Of late years, friend W., it has not been deemed best to paint our shipping-cases at all, and I believe they are seldom returned. Cases made of clean new lumber look better, as a rule, than the painted ones; and if there should be any daubing, it shows worse on the surface of the white paint than on clean wood.—We could not well suggest a price per 100 for scraping sections, especially when the labor may be much more in some cases than in others.

THAT PINE-TREE HONEY.

My bees made more honey in December and January last, than they did in August and September. The oldest inhabitants have never seen any thing of the kind. The honey-dew has dripped from the pine trees like rain falling. The leaves under the trees have been perfectly coated with the honey-dew. Walking in them, they would stick together in piles. From what I have seen myself, and what others have told me, thousands of tons of honey-dew have fallen. If the days had been longer, and all warm, so the bees could have got out early and late, they would certainly have made more honey than they ever did for me in the spring. Some of my strongest colonies filled the second story with fine honey.

J. D. COOPER.

Traveler's Rest, S. C., Feb. 5.

THE JAMAICA EXPOSITION.

Would you allow me space in your valued paper to call the attention of supply-dealers to an exhibition which is to be held in this city in January, 1891, and at which a special pavilion is to be set apart for the exhibition of bees working, and bee-keeping appliances?

As the exhibition will be held in the middle of our honey season, and as the management hope to attract many visitors, not only from Europe and the United States and Canada, but also from the other West Indian Islands, and from Central and South America, it would appear to be a capital opportunity for showing up modern bee-keeping appliances in this part of the world.

The Jamaica Bee-Keepers' Association have been asked by the exhibition commissioners to work up the bee-keeping department; and should any of your readers be desirous of sending an exhibit of appliances they will be happy to supply bees for any hives, etc., which it might be desired to show working, and to do all in their power to show off the goods to the best advantage.

If any reader desiring further information on the subject will communicate with me I shall be happy

to procure and forward copies of the regulations and forms of application for space (a sample of which I send you for information), and any other particulars they may require.

Applications for space must be sent in not later than July 1, 1890.

C. O. MAGNAN.

Kingston, Jamaica, W. I., Mar. 12.

ANSWERS TO QUESTIONS CONCERNING OREGON AS A BEE-COUNTRY.

Some time ago, I hear, my name appeared in GLEANINGS; and, of course, coming from Oregon it was read with interest. So far, so good; but that little article (I don't remember what it could have been) has gotten me into trouble. I have received 18 letters of inquiry (from brother bee-keepers, I presume), in different States. That's all right too. But some of them are outrageous. Not one of them contained even a stamp for reply. One of the writers (and I hope he will see this), after asking 22 questions as to whether he could make a living, etc., and get the best land for nothing, had the "gall" to ask me to get him a situation at good wages, as he had a large family, and *answer by return mail*. How's that for "heaping coals of fire" on my poor head? Now, Bro. Koot, I am ready, and always was, to do all I can to further the interest of any one; but it is out of reason to abuse privileges. We are civilized out here—no Indians (wild). My business keeps me very close, and I rarely get time to tend my bees as they should be; so if all inquiring brothers will write to the Immigration Bureau, Ash St., Portland, Ore., they will get all the *printed* information they want (but no situations).

Spring has fairly opened, and bees are loaded with pollen. Yesterday they literally choked the entrances in their mad scramble to get in and unload. No losses the past winter, although I hear of some through the country.

E. J. LADD.

Portland, Ore., Mar. 18.

ALFALFA HAY OVERESTIMATED.

I tried raising alfalfa on clay land near Syracuse, N. Y., some years since. It was a failure. It seems to be best adapted to irrigated sections. In Denver, alfalfa is worth about half the price of timothy. Many livemen prefer other hay. New York men are not foolish enough to ship alfalfa from Colorado the second time at any freight rate like \$180 per car. In my opinion it is an overestimated hay. Cows and horses eat it readily, and rich milk in large quantities is produced from it. The seed shipped from Rocky Ford, I think, goes to Europe, and not for seeding in New York.

Broomfield, Colo., Mar. 25.

J. T. CLAPP.

ALFALFA FOR PARTICULAR LOCALITIES.

I have received a number of inquiries from different sources, asking if I thought it would grow in particular localities. I can say but little more than I have already said, that I think it will grow in any sandy loam or any loose deep soil. It is not liable to winter-kill unless water stands on it. I think it will grow well in any latitude, provided the soil is suitable, and I would advise any who desire to raise it to give it a trial, at least on a small scale, irrespective of climate or latitude. You will doubtless be pleased with the result.

D. L. WILLIAMS.

Caldwell, Idaho, Mar. 28.

COVERS FOR HIVES.

Tell Dr. Miller to try a cover for his hives, made by nailing a piece $\frac{3}{4}$ x $1\frac{1}{2}$ in. on

projection be up and the other down; and every time he takes it off, just turn it upside down for a while, and old Sol seems by and by to let it alone. I have used them thus a long time, and I like them well. You see there are four ways to put them on, which ought to suit people who love to reverse.

D. MCKENZIE.

Camp Parapet, N. O., La., Apr. 9, 1893.

We can use our covers for the Dovetailed hive in the same way. It is true, old Sol melts down the bits of burr-combs, but it makes both sides of the cover unsightly.

SPACING OF BROOD-FRAMES.

Is there any need of spacing our brood-frames further apart than the bees ordinarily leave them when they fill and cap them with honey or brood? If there is an advantage, please state what it is.

TWO COLONIES IN THE SAME HIVE.

Is there any serious objection to having two full colonies of bees in the same hive, separated by a close-fitting division-board, and having their respective entrances in opposite directions?

Dallas, Tex., Feb. 20.

C. J. WEATHERFORD.

For winter we have spaced our frames in chaff hives further apart. We are not sure that it is necessary, however. For cellar wintering, and at all other times, wider spacing is unnecessary. There is no serious objection to having two colonies in the same hive, as you state, but some advantage in point of heat. Why such hives are not more generally adopted is because they are larger and more cumbersome, and are not as well adapted for hauling.

BEEES DYING ON THE GROUND; STARVATION NOT THE CAUSE.

I see by the report on page 168, Mar. 1, that the Wisconsin bee-keepers made up their minds that lack of stores was the reason of their bees dying on the ground in June. I had 55 stocks on my yard last spring, and there was not a hive short of stores from the time bees began to fly in the spring until they stopped flying in the fall, and have not been since. I lost only one stock in wintering, and that was my fault. They did not die from lack of stores. In the midst of the white-clover harvest, when they were storing honey as fast as at any time during the season, there were days when the ground was full of bees crawling around. You could scrape dead bees up in the paths—lots of them. I should think there would be bees enough on the ground to make a couple of good swarms. There always seemed to be more of them when the sun came out hot after a day's rain. I have had one hive affected that way all winter. I have noticed it every time the bees could fly. They were flying yesterday, and I noticed quite a number of bees on the ground in front of the hive. Bees have been able to fly here every two or three weeks all winter, and sometimes two or three times a week. I thought the trouble was one form of the nameless bee-disease. I have had that among my bees, and have noticed that bees in the same hive are not all affected alike by it. Some of them seem to dry up, and get black and shiny—look as if they were only skin and bones, and others swell up and look like bees that have been long confined to the hives by cold weather; but both have the same nervous twitching of the wings, and motion of the head. There were but two or three days when there were so very many

bees on the ground, and that was always after a rain; but for nearly two weeks they were affected in that way. I hope some cure can be found for the trouble.

DEAD-AIR VS. PACKED HIVES.

In last GLEANINGS the answers in regard to vacant space or chaff packing interested me. I think Mr. J. A. Green's reasons are correct. I never tried hives with no packing, but I have several with seven thicknesses of heavy building paper around them, with a ¼-inch space between the sheets. Bottoms and sides are covered alike. The bottom and side sheets have joints, so as to prevent circulation of air as much as possible. The bees in the chaff and sawdust packed hives always winter better than in those covered with paper.

The winter has been easy on the bees here, but it looks now as if the spring were going to be hard enough to make up for it. It snows almost every day, and the nights are quite cold. I saw one load of pollen come in yesterday.

E. D. HOWELL.

New Hampton, N. Y., Apr. 1.

Friend H., we are much obliged to you for letting us know that there is something about bees dying around the hives in June that we did not "know" all about. We thank you, too, for letting us know that a dead-air space made with building-paper is not as good as chaff. Our house-apiary was built thus with much pains and at large expense, that it might be absolutely impervious to frost. We succeeded in this; but it is damp and cold, and I should very much rather have a house made with narrow strips of wood inclosing sawdust—that is, for almost any kind of work, unless you want a damp cellar for roots, potatoes, etc.

A PECULIAR SEASON IN NAPA CO., CAL.

This has been a very peculiar season in our locality, and some have called it quite phenomenal. Seventy-two inches of rain has fallen thus far, and we have even had six little snowstorms in the coast range of mountains—one of eleven inches. Bees are in fair condition at this altitude, 1750 ft.; but the little fellows have had a very lonesome time of it. I notice some wild black bees flying to-day, and I picked up several dead ones from off a snowdrift recently. The manzanita has nearly finished blossoming, and has yielded little honey on account of the wet. The willows are out now, and a number of wild flowers, which a little later will number almost a thousand and one—figuratively. There are only five bee-keepers in the whole of this county of Napa, with a total of less than 200 hives of Italians.

St. Helena, Cal., Feb. 25.

WILL C. AIKEN.

CORRECTION ON THE OHIO CONVENTION.

It seems that I was unfortunate in making myself understood at the convention, for I was reported in the *Ohio Farmer* as saying that I had 40 swarms from reversible frames, when the 40 swarms mentioned were hived on reversible frames five years ago, and, of course, came out of hives with non-reversible frames, as it was the first year that I used reversible frames. In answer to a question, I said that I had about 20 swarms the past season, which did not contradict the claims made in my paper, as stated in the *Farmer*. And now comes GLEANINGS, with your report that I did not think reversing killed the imago queen, when, in fact, I think it does, unless they are nearly

ready to hatch. Now, the fault was not yours, but mine, because of my own stupidity. You see, I understood you to ask about *brood*; and as some of the friends had bantered me about making the "baby bees" sick by inverting their cradles, I laughingly told you it was all nonsense.

Oberlin, Ohio, Mar. 21.

CHALON FOWLS.

A LOW YIELD PER DAY.

I send you a clipping taken from March 15th No. of *Farm and Home*. Now, don't you think there is a mistake somewhere? for during the best honey season the best day gave a gain of only 2½ lbs. I had bees do better than that on fall bloom. Last season one colony I weighed gave me 55 lbs. in 20 days; the best day was 6½ lbs.; and to think that a colony during white clover and basswood gained only 7½ lbs. in June and July—it would not half winter them. Had you not better investigate it a little, and, if wrong, have it changed? Perhaps some poor fellow may have just started in the business, and may see that article, and live in a place where sugar is high, and could not afford to keep bees at that rate, and go out of the business. Here is the clipping:

An interesting trial of the industry of bees has just been made at the Rhode Island Experiment Station, by placing a hive on scales and frequently recording its weight. Beginning with June 11, on which date no gain was made, the increase fluctuated from nothing to 2½ lbs. per day. During July the greatest increase during any 24 hours was 2½ lbs. per day. This was a hive of fair strength, and the weighing was done between 4 and 5 A. M., before the bees left the hive. There were 20 days during which a decided gain was noticed, six in which no gain nor loss took place, and 18 days of loss. The gain was 22½, and the loss 15 lbs., leaving a balance of 7½ lbs.

Watson, Mich., Mar. 21.

A. C. FASSETT.

You are right, friend F. The locality must have been very poor or the colony very weak, to give so small a result as reported by the Experiment Station. We have several times had 10 lbs. gathered in a single day from white clover.

EXTRA SPACE UNDER BROOD-FRAMES; REVERSING.

Some writers claim an advantage in wintering bees by having a large space under the frames. Would not this advantage work equally well by having a space of ¾ or 1 inch or more under the frames summer and winter? Is it injurious to a frame of brood to reverse or turn upside down in any stage? What kind of flour is best for feeding bees in the spring? SUBSCRIBER.

The claim is made as you say. Experiment this summer will decide whether it would be an advantage or not. We never could see that it hurt the brood to turn it upside down. It may sometimes kill larvæ in queen-cells. We use rye flour. You may have to start them with a little syrup in order to get them to take it. Natural pollen comes in so soon with us that we have lately given no meal.—See page 129 in regard to a large amount of space under the comb.

ARE BEES IN A CELLAR UNHEALTHFUL? ETC.

1. Would wintering bees in a cellar under the house make the living-room unhealthful on account of the exhalations from the hives?

2. Do you think chaff hives for wintering out of doors would be cheaper in the end than single-walled hives put close together and protected by leaves, chaff, or some such substance?

3. Are the flat covers a sufficient protection to the hives from the weather?

4. In using supers, would not the white-clover honey be put into the brood chamber first, and the

inferior honey later on in the supers? If so, would there be an advantage in using an upper story?

DANIEL J. NAFTEL.

Goderich, Ont., Can., Feb. 1.

1. No, if the cellar is ventilated occasionally by opening a door or window at night, and if the dead bees on the cellar floor are not allowed to accumulate in too great numbers.

2. Chaff hives would be cheaper in the end.

3. They are. Most bee-keepers prefer them.

4. If stores are scarce, the white honey, when it did come, would go into the brood-chamber first. Bees will be pretty apt, especially the Italians, to fill brood-chamber first, no matter what the honey is; after that they will go into the supers if the colony is strong enough, and there is a good flow of nectar. As a general rule, there will, or ought to be, enough inferior honey in the brood-nest to cause the first white honey to go above.

NUCLEI FROM STRONG COLONIES IN THE SPRING; A QUESTION.

When the colonies become rousing strong in the fore part of May, will it lessen the number of pounds of honey in June and July, if I take a couple of frames with adhering bees to start a nucleus from each hive, and put frames in their place, filled with foundation? C. REYNOLDS.

Fremont, O., Feb. 28.

Friend R., it will most assuredly lessen the honey yield if you take brood or bees from any hive at any time, especially in the fore part of the season. Where brood-rearing is stopped, or brood is taken away just before the honey season closes, you may, by reducing the number of consumers, save a little honey. It has also been recommended to prevent swarming, by taking away brood and bees, for this will be a kind of artificial swarming.

ALFALFA ALONG THE ARKANSAS RIVER BOTTOM.

Kinsley is about a mile from the Arkansas River, and the river-bottom is from 3 to 7 miles wide. On this bottom there can be good water found anywhere at a depth of from 8 to 12 ft. (sweet water). The farmers here are beginning to sow alfalfa clover very extensively. The history of alfalfa is, that the root will go down 30 ft. if the soil is so that it can penetrate it; and such is the nature of the soil here. Once there, it is good for 20 years, and once you have a good stand you can cut two or three crops a year, and two and three tons per acre. When alfalfa is in bloom, and you drive alongside of a patch, and the wind comes over it, its fragrance is very strong and sweet.

Kinsley, Kan., Feb. 13.

FRANKLIN SPIEGLE.

THE MOSS BACKED COUNTRY; OR, BEES AND BASSWOOD.

I have never yet seen a word in GLEANINGS from up here in the moss-backed country. Perhaps you have never heard of such a place. It is a new country yet, comparatively, for the oldest settlers have to look back only about from 10 to 15 years when it was a wilderness. Ours is a manufacturing town, where the timber is worked up into butter-plates, broom-handles, lumber, etc. There are

quite a good many in the bee-business here, and are doing very well, it being a heavily timbered country. We have a good deal of basswood, white clover, and red raspberry, the latter growing spontaneously in all open places. I had 15 colonies last spring, and now have 40, all wintering well. My nephew extracted 1800 lbs. from 20 colonies, so you see they do something here. I want to state how we winter bees here, and then you can put the whole thing into the waste-basket if you think best. We dig a hole, or pit, in the ground, and board it up and cover with boards and then dirt, leaving no ventilation whatever. That is the way I have wintered my bees the past two years. I use no tobacco, so I shall have to go down into my pocket for those two smokers we need.

It is our turn to "smile" now. Instead of *mud* we have had *splendid sleighing all winter*.

Mancelona, Mich., Mar. 17.

E. CHAPMAN.

Friend C., your bees will probably winter very nicely in your sandy soil, even if you make no provision for ventilation. I suppose I am correct in thinking the soil is sandy and porous in that section of Michigan where you live.

BEES AND SAP.

For what purpose do bees use the sap of trees? I notice them using water out of holes in trees that seems to be stale, and mixed with sap. Is it one of the necessary ingredients in the preparation of food for larvæ, or do the old bees use it to aid digestion?

G. D. MIMS.

Falfa, S. C., Feb. 17.

Friend M., you evidently have never read our little book, "Merrybanks and his Neighbor," or you would not inquire why bees use sap. It furnishes them both water and sugar; and did maple sap come at a time when the weather is favorable for the bees to fly, it would probably be one of the greatest aids to brood-rearing. Bees do seem to prefer, at times, stale, foul, and stagnant water; and I do not know that any good explanation has been given. Possibly they take it because they need water, and do not stop to notice whether it is clean or not, very much as common fowls will often drink water which is leached from a manure-heap, possibly because they are too lazy or too stupid to go where better water can be had.

GOOD OR BAD LUCK; A STORY WITH A MORAL.

Some eight years ago I invested \$64.00 in eight swarms of black native bees. Within three years I was without bees or honey, every pound of the latter I got having cost me over 75 cents, saying nothing about my time and bother. Before I bought those bees I thought I knew all about keeping them. After my cash and bees were gone, and all I had to show for them was a lot of empty hives and old combs, I came to the conclusion that all is not gold that glitters, even in bee-keeping. I made kindling-wood of the hives, wax of the combs, and came to this conclusion on two things: First, that I would go a little slower next time; second, that the next bees I got should not cost me any thing, only the time to find them and the hives to put them in. Last winter being quite mild, a good many bees lived over in the woods; and being a practical bee-hunter (if not a bee-keeper) I have hunted bees nearly every year for twenty years. I found five

swarms in the timber, in April. Some one was good enough to steal one of them before I got around to take them up and transfer to hives. I took up the other four, however, and I got last season from the four, spring count, 200 lbs. of comb honey and about the same of extracted, or 100 lbs. per colony, spring count. I have now 10 swarms in the cellar, the increase from last season, which at present, March 31, are in good shape.

L. J. CLARK.

Wiscoy, Minn., Mar. 31.

Friend C., your bad luck was the result of investing heavily in bees to commence with. But why you should make kindling-wood of the hives, and wax of the combs? Wouldn't your hives and combs come in nicely now with the rational start you have made?

A BEE-KEEPER'S SAD HOME.

Mr. Root:—As my husband is a bee-keeper and a reader of your valuable paper, I take these few sad moments to write to you. We have met with a sad loss. Death has entered our home and taken our pet, our little baby. Just one month ago today she closed her sweet blue eyes; and as she loved so well to look at "papa's paper" I thought I would send you the following lines:

OUR TWO-YEAR OLD LITTLE ELLA.

Fold the little waxen fingers

Softly o'er her snowy breast;

Death has claimed our little darling—

Little Ella's now at rest.

Place within her hand sweet flowers,

Broken from the parent stem—

Fitting emblem of our treasure—

God has claimed our rarest gem.

Dearer far to us than riches—

Aye, *how* dear we ne'er could tell,

Till stern Death, with icy fingers,

Seized the one we loved so well.

Sweet blue eyes are closed for ever;

Busy hands for ever still;

Lisping tongue for ever silent!

Naught on earth her place can fill.

Hushed is now her childish laughter;

How we miss her gentle tread!

While our home, so sad and dreary,

Seems to echo, "Ella's dead!"

She's not dead, but only sleeping;

Christ himself has told us so;

We vainly try to cease our weeping,

But our hearts are filled with woe;

Filled with sorrow, for the parting

Was so sudden it might seem

That our fancy still were smarting

From a restless, troubled dream.

Strew her tiny mound with flowers—

Flowers that were our darling's prize;

May their fragrance wide be wafted

Till the Savior bids her rise.

Woodstock, Kan., April 18. MRS. F. W. ROGERS.

Hold fast to the Savior's promises, dear brother and sister; and if the loved one who has gone before you should be the means of fixing your hearts heavenward, and helping you to better meet the temptations and allurements of the sin of the world, then her little life was not in vain. Most folks know something of such trials, and you have our sympathy.

MANUM NOT INTERESTED IN SUPPLIES.

Friend Root:—It seems that many of your readers think I am in the supply-business. I judge so from the many letters I am daily receiving from parties who are in want of supplies, and who make especial inquiry about the Bristol hive, asking for my price list, etc. I wish to state right here, that I am *not* in the supply-business, nor interested in it in any way; hence my article in January GLEANINGS, describing the Bristol hive, was a purely unselfish motive, except that I like to see a good thing put forward for the good of all. My successors in the supply-business are Messrs. Drake & Smith, of this place, whose advertisement can be found in this number of GLEANINGS.

BEES WINTERED WELL.

Again my bees have wintered well on their summer stands. My loss up to date is 18 colonies out of 664, being less than 3%. You will remember, that last fall I was a little uneasy over the prospect, owing to the fact that my bees had stored so much poor fall honey and honey-dew. But, thanks to an open winter and the Bristol hive for my success in wintering. In order to make this report full and complete I should say that I have several light colonies that will probably dwindle out unless we have a favorable spring.

A. E. MANUM.

Bristol, Vt., Apr. 15.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 159.—*a. How often is it necessary, in your experience, to visit an apiary run for the production of comb honey? b. For the production of extracted honey, would it be necessary to make the visits often, and how often?*

a. Once in ten days. b. About once a week.

Wisconsin. S. W.

E. FRANCE.

I am in mine every day. I know nothing of out-apiaries personally.

New York. C.

G. M. DOOLITTLE.

a. About once a week in the busiest time. b. About the same, I think.

New York. C.

P. H. ELWOOD.

I have not had experience with out-apiaries; but I doubt whether any rigid rule can be followed successfully.

Cuba.

O. O. POPPLETON.

a. Often enough to look after swarms and see the colonies have the right amount of surplus room. b. Not as often.

Ohio. N. W.

A. B. MASON.

a. Every day during the honey season and swarming time. b. No. When run for extracted honey, twice or three times a week will answer.

Vermont. N. W.

A. E. MANUM.

We visit our apiaries twice a month during March and April; about three times in May; about four times in June and July, and more or less often during the other months till the bees are prepared for winter.

Illinois. N. W.

DADANT & SON.

a. I like to get to each apiary every four to six days in the busy time. b. Ask Dadant or France. I should guess once a week.

Illinois. N.

C. C. MILLER.

I have no out-apiary, and can not answer from experience. If I had one, and it behaved like my home apiary, it would badly need some one at hand most of the time.

Ohio. N. W.

E. E. HASTY.

I find that one has to be continually in his apiary during the honey-flow, either for comb or extracted honey, unless it is composed of only a few colonies.

Louisiana. E. C.

P. L. VIALLO.

b. We keep from 200 to 400 hives in each apiary, and think it necessary to have some one present in the apiary about all the time from April to August.

California. S. W.

R. WILKIN.

It has been my practice to visit out-apiaries once each week, both when boxing or extracting. Much better results will be reached when you can have constant supervision of the apiary.

Connecticut. S. W.

L. C. ROOT.

In the busy season, once a week, I should say. I have had no experience. Of course, the hives would have to be watched unless queen entrance-guards were used.

Michigan. C.

A. J. COOK.

a. That depends altogether upon the season and the honey-flow. b. If a large hive is used with a full set of frames in second story, it would not be necessary to visit as often as if run for comb honey.

Illinois. N. W. C.

MRS. L. HARRISON.

a. That varies so much that no rule can be laid down. When you have some one to live the swarms on the premises, a visit from the apiarist, during the honey season, every three to eight days, say, will be sufficient.

Wisconsin. S. W.

GEO. GRIMM.

a. That would depend much on the honey-flow and swarming impulse, and how you manage them when you make your visits. b. In a large apiary, in the swarming and honey season we find it necessary to visit them daily.

Wisconsin. S. W.

S. I. FREEBORN.

Your visits to your apiary should be determined by the season and not by "made-up" rules. If your own experience does not tell you when to examine your bees, your chances are poor for a full crop of honey, and for yourself to ever become a good bee-keeper.

Ohio. S. W.

C. F. MUTH.

I have had but little experience with out-apiaries run for comb honey. A small one got along very well with visits at intervals of about a week during the producing season. For extracted honey the visits need not be so frequent. I have run out-apiaries for extracted honey, visiting them only five or six times during the season.

Illinois. N. C.

J. A. GREEN.

That depends on the kind of help you have. If you have poor helpers you will find it to your advantage to make such visits as frequently as possible. With reliable help, apiaries might be run through the season without seeing them. b. I should think not, especially with abundance of sur-

plus combs. Much depends upon the methods employed.

Ohio. N. W.

H. R. BOARDMAN.

I should think about as often as to visit one run for extracted honey, and that is once a week from the first of May until in July. I gauge my visits by indications in the home yard. If honey comes rapidly, surplus cases must be ready, and *must* be put on, even if the visits have to be oftener than once a week. Our visits average about once in ten days.

New York. E.

RAMBLER.

Oh gracious! Every thing depends upon the system of running out-apiaries which you adopt, especially in the production of comb honey. My plan is to keep a good man in an apiary, said apiary containing bees enough to keep him busy and be worthy of his hire. In the production of extracted honey I have always done the same way, but I am by no means sure but that out-apiaries might be run at a greater profit by locking them up and visiting them occasionally. Every thing depends upon the style of hive you use, and consequently what manipulation and general system of management.

Michigan. S. W.

JAMES HEDDON.

The above seems to be pretty well answered, without any thing additional from myself. Friend Heddon, however, hits a point that I think should be considered. He says his plan is to keep a good man in the apiary. Now, the point is to *get* a good man. I *have* had men in the apiary who did so many things that were a direct damage, that I should much prefer having the bees under lock and key, so as to keep them from being tinkered to death. We should be slow, however, in finding fault, especially when many of us have our own selves several times done harm by this same unseasonable tinkering. When the house-apiary first came out it was especially recommended because it might be locked up, to keep the bees and honey safe when located away from the home of the owner.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

KILLING OUT ALFALFA.

I read in the *Denver Field and Farm* two instances where alfalfa was plowed under and the ground seeded to wheat, and a crop of wheat and a crop of alfalfa seed were harvested the same season.

Silver Cliff, Col., Feb. 27.

M. NEVINS.

PROF. COOK'S SUCCESS IN MAKING MAPLE SUGAR IN THE SPRING OF 1890.

I lost all my sugar-apparatus, house and all, by fire. I bought new, and have nearly paid for all in this one year.

A. J. COOK.

Lansing, Mich., April, 1890.

What is the best way to fertilize a queen by any special drone?

ROLAND LINDSAY.

Philadelphia, Pa., Feb. 17.

[There is no best way—it can not be done. Keep only drones at large of good selected stock, and you will get good bees.]

CLIPPING OR A QUEEN-TRAP.

What plan would you advise—clipping the queen's wing, or using the queen-traps during my absence?

J. N. SMITH.

Harvey Cedars, N. J.

[Clip the queen's wing. The traps are a hindrance if kept on the hive all summer.]

DO BEES SWARM WITHOUT A QUEEN?

I got into an argument as to whether bees will swarm without a queen or queen-cells. I want your opinion on that question.

L. I. MORRIS.

Snowville, O., Feb. 23.

[Bees will seldom if ever swarm without a queen of some kind.]

THE LITTLE BUSY BEE.

How doth the little busy bee

Improve each shining minute!

And sometimes, too, he has his fun;

But, friend, don't you begin it.

Cleveland, O., Mar. 6.

R. V. MURRAY.

[Mr. Murray is our special artist for GLEANINGS. He has lately come into possession of some bees, and vouches from experience.]

WILL BEES WORK IN THE LIGHT?

Is light injurious in any way to the welfare of bees? I have a 10-frame glass hive.

Kennonsburg, Ohio, April 7.

J. B. WILLIAMS.

[Friend W., bees do not seem to fancy working in the full light of day, as a rule. They may be accustomed to it, however, so that they go right along without any apparent hindrance. We see this in observatory hives placed before windows.]

PROPER SPACE BETWEEN END-BAR AND HIVE.

With $\frac{3}{8}$ -inch end-bars, is there any danger of propolizing when clearance between end-bar of brood-frame and hive is only $\frac{1}{8}$ inch, or how close can the end-bar come and be safe from propolizing?

St. Louis, Mo., Feb. 20.

A. C. ALLEN.

[One-eighth of an inch is hardly enough. Bees will fasten it with propolis. Five-sixteenths or $\frac{3}{8}$ is as close as you can space; in fact, a bee-space is the best.]

TOO CLOSE SPACING.

I have been using Simplicity hive, 8 frames, spaced $1\frac{1}{2}$ inches. I want to try thick top-bars, 1 inch wide, spaced $\frac{1}{8}$. Would you use 9 frames per hive, or is that too near together to have bees winter well outdoors?

BURDETT HALL.

Chittenango, N. Y., April 2.

[Use 8 frames spaced $1\frac{1}{2}$ inches from center to center. Closer spacing would not be advisable.]

BEE-STINGS NOT A CURE FOR RHEUMATISM.

I must let you know that I am on the sick-list with that dreadful disease, rheumatism. For three weeks I have been suffering terribly, but I am on the mend, though slow. I hope I shall be all right again. It comes very easily, but it is hard to get rid of. Bee-stings are a very poor remedy. They might help some people, but are no good for me.

Edwardsville, Ill., Mar. 17.

LOUIS WERNER.

ANOTHER USE FOR FEEDERS AS HILL DEVICES.

Please tell your readers that two Simplicity bee-feeders, turned bottom side up across the brood-frames, will give as good results as a more costly device for packing bees for winter.

C. A. DEAN.

Meshoppen, Pa., Mar. 1.

[Yes, sir, they will work all right. When we fed up our apiary with two wooden butter-dishes we turned the latter upside down over the center of the brood-nest, after they were empty, on some of the hives. They work just as well as the Hill de-

vices; and as they are very much cheaper they would be preferable.]

HOUSE-APIARIES—SEE PAGE 132.

I was somewhat astonished on reading J. Vanderbilt's statement. What a difference it makes how a house-apiry is built and managed! I have lost no queens yet by mating. I get scarcely a sting, unless I pinch them. They winter better, because better protected than they could be outdoors. I think the difference must be, I use hives and he does not. I would not take a house-apiry as a gift, and use it that way, with stationary hives.

Holloway, Mich., Feb. 17.

H. S. HOXIE.

REPORTS ENCOURAGING.

From 90 colonies, spring count, to 130; 1000 lbs. of comb and 7000 of extracted honey.

Wharton, Texas, Mar. 8.

W. O. VICTOR.

During 1889 we secured, from 75 colonies, 5357 lbs. of comb honey—an average per colony of 71 $\frac{2}{3}$ lbs.

JOHN & JAMES COWE.

Goodland, Mich., Apr. 19, 1890.

FROM 33 TO 86, AND 4000 LBS. OF HONEY.

My honey crop last season was 4000 lbs.—3000 comb and 1000 extracted, from 36 colonies, spring count, and increased to 83.

J. E. HAND.

Abbott, Ia., Mar. 31.

NEVER LOST IN CHAFF HIVES.

I have 40 colonies of bees in excellent condition. I sold 3000 lbs. of honey last season, from 39 colonies—2500 lbs. comb, 500 extracted. I have wintered on summer stands in your chaff hives for four winters, and have not lost a colony.

Atwood, Ill., Apr. 4.

J. S. MARSHALL.

1200 LBS. FROM 15 COLONIES.

From 15 hives in the spring my bees increased to 74, and I took 1200 pounds of section honey. I am wintering them in sheds with hay packed around them. They were all doing nicely the first of this week. They had a good fly, and carried in some pollen.

E. M. ANDERSON.

Maryville, Mo., Feb. 27.

\$500 PER YEAR FROM THE BEES, BESIDES THE INCOME FROM THE FARM.

May 1st found us with about 80 swarms, good and bad. We had at one time 135 swarms, but doubled back to 98, which we put into the cellar the last of November. We took off 5100 lbs. in sections, and extracted 1000 lbs. The last three seasons we have averaged about \$500 from them. We have a small farm in the edge of the timber. We have at this date 150 hens and 5 cows. This combination works well, and gives us enough to eat and wear.

E. R. A. & B. BRAINARD.

Postville, Ia., Feb. 28, 1890.

A GOOD REPORT; THE CHAFF HIVE.

I secured 2235 lbs. of comb honey from 15 colonies, spring count, and increased to 28. I attribute my success to wintering in your chaff hive, which I have done for the last nine years without losing a colony in that time so wintered; also G. M. Doolittle's plan of contracting brood-nest to only those combs having brood in them, when examined in spring, and allowing them to thoroughly fill with brood before giving more combs; by also con-

tracting the brood-nest to five or six combs during clover and basswood harvest.

M. L. POTEET.

St. Joseph, Mo., Mar. 20.

NO LOSS IN WINTER.

Our bees went into winter quarters with plenty of honey, and came through the winter in fine condition, not losing any out of 100. They carried in pollen April 2, for the first time I have seen them this year, and there has been sealed brood in nearly all we have looked at. Our bees did not do very well last season, owing to lack of honey to keep up brood-rearing at the right time (June). We secured only about 700 lbs. of comb, and extracted from 70 colonies.

C. W. BOSWORTH.

Ford, O., April 5.

FROM 12 TO 23, AND 200 LBS. OF HONEY.

I had 12 colonies last spring, increased to 23; took over 200 lbs. of comb honey in 1-lb. boxes, completed, besides as many more that were not completed I sold at home, at 15 cents; sent 48 lbs. to Pittsburg, Pa., and got 20 cts. for it. After paying express, I cleared about 17 $\frac{1}{2}$ cts. The empty crate was never returned. I sold 7 colonies, which left me 16 to winter. Thus far I have lost none.

Fairview, O., Mar. 5.

E. C. MORTON.

Friend M., it seems that you got more money for your honey at wholesale than you did at retail. In that case it certainly pays to send it off to the large cities. As the cases that we ship honey in cost so little, I do not believe it is worth while to have them returned unless there are a good many of them, and can come direct.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

STAPLE-SPACERS.

F. J.—If you will turn to the foot-note to Phelps' article, p. 99, you will see that we have already anticipated your idea of staples in the rabbets. The idea now seems to us to be the most feasible for hanging frames.

A. G.—We can not make swarms alight where we want them to, at least not very often. You can not prevent swarming entirely. If you produce extracted honey, and give the colonies a large amount of room, you can to a large extent. See "Swarming," "Comb Honey," and "Extracting," in A B C.

SENDING BEES BY FREIGHT WITH HOUSEHOLD GOODS.

J. H.—Bees can be shipped by freight with household goods, providing you see to loading and unloading. Be sure to put frames lengthwise of car. If frames are hanging, stick them up. We do not know much about Roe's chaff hive. It is probably a good one. The Simplicity frame is used in all our hives.

B.—Yes, we can make a cover for the Dovetailed hive like the Simplicity, but you do not want it. The whole bee-fraternity is demanding the flat cover. There should be only a bee-space ($\frac{3}{8}$ inch) between the cover and the brood-frames. If you have more above you will have just so many more burr-combs. The cover should either be flat, or deep enough to hold sections. Less than a bee-space or less than $4\frac{1}{2}$ inches is a positive detriment. We would strongly urge you to get the flat cover. It is cheaper and better.

MYSELF AND MY NEIGHBORS.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.—GEN. 2 : 24.

Be fruitful, and multiply, and replenish the earth.—GEN. 1 : 28.

SUPPOSE some hideous giant should come on mankind, and kill them all off; what sort of a world would this be compared with what it is just now? Or, suppose that cyclones, tornadoes, and earthquakes should destroy and kill off every vestige of the human family. God does permit and has permitted at times a wholesale destruction of human life; but it seems evident, without going to the Holy Scriptures, that the intention of the Creator of the universe can not be to destroy human life utterly. Man, especially at the present time, occupies too prominent a position in the universe for us to cherish a thought that he may ultimately become extinct. Whether one turns to the Mosaic record, or whether he takes a common-sense view of the present state of affairs, he must, if honest, admit that the evidences are too plain and unmistakable that the universe was created for man and not man for the universe. What has this to do with our text? Why, this much: Some of the friends who read GLEANINGS, evidently seem to think (in practice at least, if not in theory), that the extinction of the whole human family would be no very great calamity. Yes, they go even further than this. If this great giant should kill all the best of the people, and leave the bad, we might complain of him more than if he took the good and bad alike, indiscriminately. Or if the cyclones and tornadoes should destroy only the good, hard-working people, and skip over the vicious and criminal classes, that would be harder to understand than entire extinction. A good deal has been said about suicides lately; and we have talked about it as if it were a malady or disease—a terrible one too, I admit. Why did God so create us that it were possible to commit self-murder? Well, I have been conversant with quite a number who were bent on suicide. I have talked with them; and I have found quite a few people who declare that life is no boon nor blessing; and sometimes fairly good people are wicked enough to say, "I wish I were dead;" but I never yet found a man or woman so bad as to say right out that they would kill themselves *and everybody else* if they had an opportunity. I never yet talked with any one who meditated or longed for universal suicide—the entire extinction of humanity in general; yet I have seen people who in practice seemed to be quite indifferent to the fact that they were setting an example recommending the total extinction of the whole human family, or, as I put it just a little back, the destruction of—shall we say the better class of people? My friend, perhaps you think I am over-drawing things this morning. Let us see whether I am.

In our text we have the plain command that a man shall leave his father and his mother, and cleave unto his wife. Now,

suppose those of you who are, say, 25 years of age or more, are still living with father or mother, or, if you choose, living by yourselves, in some other way, without any thought or intention of obeying this Bible precept. What would be the result? If no one should get married, it would take only a little more than 100 years to bring about this universal suicide I have been speaking of. I am taking it for granted that the readers of GLEANINGS average a little better than that portion of humanity who do not read it, or perhaps who do not read any thing at all. Are Christian people, you ask, more likely to get married than other people? I think they are. Look about you, and see if it is not so. It is true, there are a good many Christians who do not get married; but I think they are, as a rule, doing wrong. They are omitting one of the first commands spoken to the human family at the very beginning of the human race; and without any Bible about it, they are encouraging, by example, wholesale suicide, or, if you choose, general suicide. Should everybody get married? If you want my opinion, dear friends, I think that, *as a rule*, everybody *should* get married. I am now speaking chiefly to my own sex; but I shall have something to say to the other sex before I get through. I propose in this talk this morning to quote a good deal from my son Ernest. I do not mean that I shall quote from his writings, but from his words and admonitions that have been dropped now and then for 25 years or more. Shortly after he left college we were discussing a candidate for a very prominent office in the affairs of our nation. He surprised me by saying that it was a little against him that he was not a *married* man. I looked up a little in surprise, and replied:

"Do you mean that to be taken as a universal rule—that is, are we to take it for granted, that, other things being equal, a man who is married is a better *moral* man than one who is not?"

He replied very decidedly that such was the teaching of the college professors, at any rate. I have thought of it a good many times since, and I believe that his teachings at school were about right. My good friend, if you are of a marriageable age, and are still standing before the world as unmarried, your example is a bad one. In looking after the welfare of the young men who are at work for me, and who have been working for me for toward a quarter of a century, I have been led to rejoice when I knew they were getting married. When the women-folks of our establishment get married, it generally means giving up their places; but notwithstanding that, I am, as a rule, glad to know they are getting married. Of course, I must put my own convenience out of the question when I say this. I do not feel, however, that I can with as much consistency advise women to get married, generally, as men. One reason is, they sometimes make mistakes, and marry men who are not worthy of them. But even this state of affairs sometimes—yes, oftentimes,—turns out well if only *one* of the two has the love of Christ Jesus in the heart.

Our second text says, "Be fruitful, multiply, and replenish the earth." There are two phases of this question; and before taking up the first one I want to ask your indulgence a little. I am an old friend to most of you. I am pretty fairly along in years also, so that I can speak to you in fatherly counsel, and I may also speak very plainly, I think, without being out of place. What I have to say now is a good deal to the young people—perhaps mostly young men; but I feel sure that it will be right and proper to put what I have to say, even on a printed page, where perhaps the younger ones of my family may read it also. The point is this: There *is* such a thing as fulfilling (at least after a fashion), a command like one of our two texts, without marriage at all. Since the world began, this thing has come up at different times, and I believe we have had a few men as well as women who were bold enough, and, I think I may add, silly enough, to recommend abolishing marriage. Of course, this is contrary to Scripture; but I am glad to say that it is contrary to common sense too. Even those who practice otherwise, strongly recommend faithfulness to the marriage relation. In the ten commandments, this seems to be recognized as of so much importance that it is placed right after "Thou shalt not kill." Society at large, almost the whole world over, regards the desecration of this command as so fearful a crime that mankind stand away and hold themselves aloof from the guilty ones. It has been said, that, although one who is sunk to the lowest depths in intemperance may reform, the ones who disregard again and again this particular command, may *never* reform; and even if they do, nobody believes them. Christ's teachings, however, have done much to correct this. Christian men and women are now ready to say, as did the Savior of mankind, "Neither do I condemn thee; go, and sin no more."

A good many who are guilty of breaking this command seem to think that, providing it can be kept secret or out of sight, it does not matter so very much. O my young friends, do not fall into this grievous error. It is Satan who persuades you that it can be concealed; and it is Satan who tells you "it does not matter so very much." Sometimes people say that David broke this commandment and God overlooked it. True, my friend; but does history show any parallel to such grievous punishment, trouble, and calamity for sin, as the one that followed David's wrong act? Who would go through with what he did? who would see his children commit crime after crime, even to the finishing stroke of having one of his own children pursue him to take his life, simply that he might take the throne a little sooner? And the day is *not* past, my friends, by considerable, when *like* punishment shall follow swift and fast.

For some time past our jail has been mostly deserted, from the fact that intoxicating liquors are sold no more in our town, and, to a very limited extent, in Medina County; but this very sin of which I have been speaking still brings more or less inside our jail

walls. Two Sabbaths ago there was quite a class in the jail. Two if not more were guilty of crime in this line. The Bible soon came under discussion. That was rejected also, as I expected it would be. I was astonished at one pleasant-faced young man; and I was perplexed, also, to hear that he was in prison for so very trifling an offense. Some people threw stones at him. He picked up a stone and threw it back at his persecutors. He threw straighter than the latter, and one of them was injured, therefore he was in jail for assault and battery, even though they, without question, "cast the first stone." During my first visit I did not make any headway in leading him to Christ Jesus. When the rest had all left, however, and he had been for some weeks alone, he told me some of his troubles. During my first talk, it seemed to me as if there were a sliver somewhere under the flesh, that was hurting him, and that no permanent relief could come to him until the flesh were probed and the sliver got out. As his spiritual adviser I questioned him, of course by his permission. Four years ago he was a member of the church, a new convert. Why should he now be in jail? The first thing I found out was, that, as he was a barber by trade, he had been breaking the Sabbath. He said that, as his competitors in the town kept their shop open on Sunday, of course he was obliged to do the same. He could not make a living and compete with the others unless he also worked on Sunday; therefore he had not been to church for a good while. Now, I have heard this excuse over and over again. Just see the fallacy of it. Did he make a living and compete successfully with the others by keeping his shop *open* on Sunday? Why, to be sure he did not, or why should he be here in jail? For a time I was inclined to think his breaking the Sabbath might be the sin that brought him into this present trouble—at least, he seemed to think it was the worst thing he had done that a Christian ought not to do. I soon found out that he was a married man; next, that he had one child. In appealing to him for the sake of his wife and child, I discovered that this one child was less than a week old. The poor little stranger came into the world while its father was in jail, and, in fact, he had never seen it. A little later, in answer to a searching question, he confessed that he had been married less than half a year. Sabbath-breaking may have opened the way; but sin and crime followed quickly on. The marriage ceremony was performed while he was in the custody of an officer of the law. After he had told me all, he begged piteously to have me save him from the workhouse that stood right before him, by paying his fine and taking him into my employ. It fairly wrung my heart to tell him that I had learned by sad experience that it was not best for me to interfere with justice.

And now, my dear friends, comes the point I wish to call out and emphasize. When this young man confessed to me his crime in breaking this commandment I am speaking of, he excused himself by saying that *he* was not *particularly* guilty in that line. He spoke something like this:

"Why, Mr Root, you surely are aware that boys the world over are accustomed to transgress more or less, and that it is hardly to be expected that the average young man, before he is married, shall be entirely exempt from this kind of sin and folly. After he gets married, as a matter of course it is his duty to be faithful to his wife."

When I asked him if being a member of the church did not require absolute faithfulness in keeping this command, he seemed to think it was expecting almost too much of the average young man, at the present time. Perhaps some of you who read this may smile. May be some of you think, as did this poor friend in jail, that my young friend was giving me the actual state of affairs here in our cultured and enlightened land of liberty. I will admit this, dear friends, that *some* of you may have lived in a community, or have for your friends and companions a class of people who are about like those described above; but, may God be praised, I know it is not the rule. I am just as sure that the young Christians of our town and community—the members of the Endeavor Society throughout our land—are not of that class, as I am of almost any thing. There may be exceptions, and there are doubtless black sheep, even among the children of God, but they can not stay there long. A man or woman may serve God and the devil, apparently, for a *little* time; but it is true, as I stated, and as the Bible teaches, that he will very soon "hate the one and love the other, or else he will hold to the one and despise the other."

Now, then, for the second part of this latter text. If all the world should get married and no little ones were to come into the household, this state of affairs would be nearly as bad as before. The two that became one would be happier and better for being united in marriage; but this other matter of universal suicide would go on as before. Medical journals, scientific journals, and religious journals, have been discussing the matter for years past; and if we look about us we must admit that the "replenishing of the earth" is *mainly* brought about by the ignorant, vicious, illiterate, and sinful. Great organized companies of Christian men and Christian women are laboring to *save* the children of our land, while criminal and intemperate parents are furnishing more children to fill our prisons, jails, reform schools, and possibly mission schools, of our great cities. When the matter comes up, I believe the discussion ends by the belief that there is little or no help for it. But where, pray tell me, dear friends, are the Christian *men and women* coming from in the next generation, if these Christian men and women have *no children* in their own homes? Somebody, perhaps, opposes me by saying, "Look here, Mr. Root, are you going to advise and insist that a cultivated, intelligent, and talented Christian woman shall wear her life out, and go to a premature grave, by trying to take care of a great family of children?" No, I am not going to advise any thing in the way of extremes. I am not going to advise any thing unchristianlike; but I do think that no home can be complete without

children; neither can our great nation stand against the machinery of Satan, with so many *childless homes*. As a rule, I rather like good-sized families; but, of course, much will depend on circumstances. Five or six, with proper intervals between their ages, are a power for good for each other, and a power for good for the fathers and mothers. I wish to end now with a little of my own experience; and I hope to tell you, too, how God has *led* me, even though many times I was stubborn and contrary, and did not want to be led.

I have six brothers and sisters alive at the present time. Although father and mother were both faithful Christians (mother is still with us), many of our number were slow in coming into the fold. I shall always feel greatly indebted to a sister a little older than myself for her wise, kind Christian advice at different times in my life. It first came when I was about 22 years old, and my wife was 20. We were yet unmarried, although we had been engaged for two or three years. This sister wrote me a kind Christian letter, and closed by urging us to get married. She said she was afraid to have us wait any longer. She told us not to wait until we were better off, but to settle down and go to work *together*, saying we would accomplish more in every way; that we were losing time, and that it were far better *every way* that we should go to work together. I confess the letter rather pleased me, and I made it an excuse for going to see dear Sue that very evening. She did not need *very much* urging, and I was (and am *yet*) a pretty good hand to plead. I need not say that neither of us *ever* regretted the step. Scarcely a year had passed, however, before we went to this sister with another trouble. What do you suppose the trouble was, dear readers? Why, it was like this: We had planned to have a good time for some *three or four years*, without having our household encumbered with little ones to keep us at home, etc. But, man proposes and God disposes; and—oh dear me! what sorrowful faces we two presented! Well, this good sister spoke something like this: She was talking to me particularly:

"Why, you dear foolish young brother! Here you are, looking doleful about the very thing that will rejoice your heart more than any other event that could possibly happen, or perhaps *ever will* happen in your two lives. Very likely the little stranger will, in God's providence, prove to be a boy; and as you are not yet 25, what a pretty sight it will be to see a father and son, with so little difference in their ages that one might almost be mistaken for the other! You two will go around the world together as companions and playmates. This son (or daughter) will be your prop and stay in your declining years. In *just a little time* he will be the *light of your household* and the *joy of your hearts*."

I have sometimes wondered whether these words were not an extempore prophecy. Did any thing ever come more *literally* true? The new baby was unusually apt and bright. Was it not strange that it *happened* so? Did you ever hear of any such babies, especially the *first* one? Why, before he

was a year old he took such a shine to mechanics and machinery that he could understand almost every thing in the *Scientific American*—that is, when his papa pointed to the pictures and explained (?) them to him. I believe the first step he ever took was when he was so intent on the pictures in the *Scientific American* that he forgot that no one was leading him. When he was two years old, papa took him one Sunday afternoon down to "grandpa's," two miles and a half, *on foot*. Of course, the little chap did not walk *all* that distance; but he walked enough of it, where the roads were smooth, so that the perspiration stood on his dimpled face, and a peachy flush colored his cheeks. How he and his papa did *visit* during that two miles and a half! Grandpa laughed, but grandma scolded. They were sure it would make him sick; but after he had had a half-hour's nap he ran about grandpa's dooryard as brisk as could be. Papa was his loving teacher. What a wonderful fund of strange things there was in this world for these loving two to discuss together! and mamma looked fondly on, rejoicing in her heart that, notwithstanding the devotion between those two, she was never forgotten by either one—certainly not at *this* time. I have room for just one more incident, illustrating God's providence and God's way of rewarding those who fulfill his holy commands, and strive to obey the words of my two texts before us to-day:

The boy whom God sent (even a little before we had got our housekeeping arrangements fixed for his reception) grew as boys usually do, and in due time was an inmate of the Sunday-school. No thanks to his papa, however, for this part of his education. He and his papa were friends just the same. I shall remember as long as I live, I presume, how he looked one Sunday morning after he had his nice clothes on, face washed, hair combed, and Sunday shoes shined up; he came to me with something evidently on his mind. When he was struggling with a weighty problem, or had a question to ask, he had a fashion of walking clear around you, keeping his face right toward you, until he had taken you on all sides, as it were—literally hemmed you in. I knew him well enough to see that there was something on his mind that troubled him as he looked up at me, and then down, while he walked around me and meditated. Pretty soon I said, by way of encouragement:

"Well, my boy, what is it? Let's hear it."

It evidently was no common matter, for he hesitated. Finally he commenced:

"Why, pa, what do you think of Sunday-schools?"

Then it was *my* turn to look down and feel perhaps somewhat embarrassed. I attempted to reply, however, as I usually did, presuming on my superior wisdom and knowledge of the world.

"Oh! Sunday-schools are well enough, I suppose, for folks who like them."

I did not really want to say it to *him*, but I left a little implied, to the effect that different people have different tastes. It was

evident that he had not quite finished what he had to say, however, and that the burden was not by any means off his little mind. There was something coming that was harder for him to say, as I could see by his looks. But he looked me fairly in the face, and did his duty like a man.

"Well, pa, don't you think it would be better for *you* to go to Sunday-school instead of going up to the store, or going off into the woods, and things of that kind?"

After having relieved his mind of its burden he was off, hopping around at his play like any other boy, probably without any idea that he had for the time changed matters about so that he became teacher, and the father became pupil.

It was a very short sermon, and it came from a very small preacher; but it hit the spot more than any sermon I had ever heard. I was in a tight place. Had it been anybody else than that boy—the boy whom I loved, perhaps, more than I loved my Creator at that time—I should have resented such interference. He had done his duty like a man, and I could not tell *him* that I would do as I pleased. I could only answer, with downcast eyes, "Perhaps it would." After I had spoken the words aloud, I kept saying to myself, "Perhaps it would; perhaps it would." Other agencies were at work at the time to bring me where a father ought to be; but his question was the hardest of them all to get over. Dear reader, I *never* got over it. It was not many Sundays before I went *with him* to Sunday-school, and I have never passed a Sabbath *since* without attending a Sunday-school somewhere. I had never thought of it until just lately, and I did not give my boy any promise as to what I would do; but I promised the Master, and I am very glad to be able to say that the promise has never yet been broken. Did anybody teach him to say this to me? Surely not. It was not like him. His mother was a praying woman, but it was not like her. Hold a minute! Perhaps somebody did tell him; and was it not He who said, "Suffer little children to come unto me, and forbid them not"? We read in Holy Writ, "A little child shall lead them;" also, "God hath chosen the weak things of the world to confound the things which are mighty."

Now, friends, with the above in view, let us consider God's command in our two texts to-day. When my sister wrote me that letter, there was some danger that I might have drifted away and never been a married man at all. Again, when she gave us that kind Christian counsel, had we poor sinful mortals in our narrow-sightedness been permitted to have *our* way, our household might never have been gladdened in the way I have told you of; and had not that brief little sermon come to the ungodly father just as it did, I might have been—who shall say where?—instead of pleading with you as I am doing to-day for Christ Jesus. If any Sunday-school boys or girls are in the habit of reading these Home Papers, let me bid them to remember the influence that is oftentimes vested with them; and let me bid them to stick to the Sunday-

school; and to the praying mothers whose eyes rest on these pages, let me say, "Dear sisters, be ye not weary; for in due season ye *shall* reap if ye faint not." And lastly, what shall I say to fathers who have not yet made their peace with God? Do not delay, dear brothers. Remember the faithful wives—those who have, perhaps, prayed long years for you. Do not, I beseech of you, harden your hearts against these gentle influences. "Except ye become as a *little child*, ye can not enter into the kingdom of heaven."

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE WEATHER.

THE weather, for the most part, during the past month, has been either cold or rainy. We have had only a few days in which the bees gathered pollen. The buds are making an attempt to open, but the weather forbids. Soft maples have been out for nearly a couple of weeks, and during the few days that bees could fly they were gathering some

NEW HONEY AND POLLEN.

I believe that somebody said that the soft maple yields no nectar. It may be true in some localities; but for Medina it must be a mistake. There is no other source from which the new honey *could* come. That it has been lately gathered, is evidenced by the fact that it spills out of the combs when the latter are handled roughly or turned to a horizontal plane.

HOW OUR BEES WINTERED OUTDOORS.

We put into winter quarters last year, on their summer stands, in chaff, 150 colonies. Two have perished. A few others had to be united. The rest were in fair to good condition.

OLD OR YOUNG QUEENS FOR WINTER.

One fact seems to stand out plainly. Our now strongest and best colonies had, last fall, young queens. Queens that were two or three years old have not begun to equal, in point of strength and brood-rearing, the colonies of their younger sisters. We have observed this fact before, but it was never before so noticeable as during this spring, because we never before had so many old queens in the apiary. This may be one of Manum's secrets of success in wintering (see his report elsewhere), namely, that he *will* have young queens in his apiary. Young queens in the cellar had the best colonies.

OUR COLONIES IN THE CELLAR.

Out of 42 in the cellar, we lost nine—three by starvation, three others because they were very weak in the fall, but we took our chances on wintering them; and the three remaining died from unknown causes. Well, now, this does not speak as well for the indoor as for our outdoor method; but when we come to examine into the causes, perhaps we shall not notice very much difference after all. The colonies outdoors in the home apiary had not been used for fill-

ing orders during the past season, consequently were in good condition in the fall and hence ought to winter well. With such assistance as Neighbor H. could render us, we used the basswood apiary—the apiary that was wintered in the cellar—exclusively for filling orders for bees and queens. The result was, the colonies of this apiary were very greatly reduced in strength, not only from the heavy drain of bees and queens that had to be taken from them, but from neglect. After the loss of my horse I found it many times inconvenient (our other horses being in use) to visit the basswood apiary as often as was necessary for a queen-rearing apiary. The consequence was, that some cells failed to hatch, or some queens would be lost in fertilization, and whole colonies would be left queenless for a week or ten days, and this was along during the fall. For a similar reason we found it a little inconvenient to feed. They were not fed until they were taken back to my house just preparatory to putting them into the cellar. At the time they were fed, many of them would not take down syrup, and hence they were in rather poor condition. But I thought, perhaps over-confidently, that in the cellar they would surely winter. Well, as I stated, three died from starvation. That was no particular fault of the cellar or method. As it was rather late in the season, we put the bees on rather shorter rations than we would otherwise have done, outdoors. The three weak ones had old queens, and it is pretty evident that they died shortly after they were put into the cellar. The few bees left dwindled away. Perhaps I should say that one of these three had a bottom-board on, and the other two did not. Of 42 in the cellar, some seven or eight had bottom-boards. If I was ever satisfied of one thing, it was that those colonies which had no bottom-boards were in much the better condition. One colony in particular, which had a bottom-board, was a stinking mass of bees, and the few that remained seemed tired of life. A large, strong, and prosperous colony in the fall was then dead on the bottom-board, in a white mold. A bottom-board with a weak colony is not nearly so bad as with a strong one.

THE DIBBERN BEE-ESCAPE.

I have already tested this to a limited extent. I put some combs into a hive one day when the bees were flying well, and allowed them to get started on them so that it was a real case of robbing. I then placed a cover-board on top, with a hole, over which was placed a Dibbern escape. The entrance was then closed. The robbers passed out quite readily. But only one out of several hundred bees that I watched succeeded in getting back into the hive; and I venture to say he did not know how he got there, and I doubt whether he succeeded in making an entrance again. Although the hive was full of robbers, about half an hour afterward there was not a bee in the hive, although there were hundreds of them flying around on the outside, trying to get in. This test is by no means conclusive, but it is favorable.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

GARDENING FOR MAY.

WHY, friends, the very mention of the matter fills me with energy and enthusiasm. Talk of trips to foreign countries! talk of holiday excursions! talk of entertainments in the great cities! talk of concerts and distinguished musicians! I would rather have a holiday to make garden in the month of May, than any other enjoyment or pleasure that this world has to offer. Of course, now, I am not speaking or thinking particularly of spiritual enjoyments—the thrill that comes to one who sees his labor rewarded in trying to save a soul from sin. In my talks about gardening for May, I meant particularly the harmless and innocent enjoyments that this world can furnish; but at the same time my ideal garden would ultimately *help* to save souls from sin.

Now, please do not misunderstand me. I should not enjoy making garden as most people do it. There are only a few gardens, comparatively, that are up to the standard, or that “fill the bill,” if I may use the expression. That visit to J. M. Smith, of Green Bay, Wis., was satisfying; the market-gardens round about Arlington, near Boston, were satisfying; but nothing short of soil worked up to its highest condition would ever satisfy me thoroughly. People often come nowadays and look into our greenhouses and at our plant-beds in the open air; and they usually break forth into expressions of surprise at the crops, and then they say, “Oh! no wonder you get great crops when your ground is manured and worked up like that.” I feel a little sad sometimes to think there are so few people who care enough about fruits and vegetables to pay the price, or, if you choose, take the pains to let Nature show what she *can* do. Almost everybody admits that it pays, and pays well; but yet only a few care enough about it, or have a love for that sort of work. Quite a good many also start out with enthusiasm, but pretty soon their energy wanes; the garden is neglected, and then they become disgusted with it. After one has *succeeded*, however, in getting great crops, and has got his ground into such trim as friend Smith and I have ours, his enthusiasm rather increases.

The purpose of my talk to-day is to see if I can not get some of you *started* so that you will not “peter out” after awhile. If this meets the eye of some one who has a real love for these things, let me tell him how to go to work. You *can* make the business pay away out in the country, say two or three miles from any town; but the nearer you come to some town or city, the better. If you can not have a town or city, get into a village (I *like* villages), and get right up close to the stores and groceries, if you can.

Find a vacant piece of ground that is not obstructed by out-buildings on the south, so as to cut off the sunlight, and you can pay as good a price for the ground, almost, as anybody can pay, for any other purpose. Yes, it will pay you to take a *building-spot* at the ordinary price that building-spots are worth. Then if you can find some more ground just back of this spot fronting the main street, get that. If you can not buy it, rent it and get the refusal of it, so that nobody will get in your way when you need more room. As soon as you get the land in your possession, set up a sign of your business in the shape of vegetable-plants. Get some tomato-plants, and put them in boxes or pots, and fix them up so nice and attractive that everybody who goes by will stop and look at them and want them. I never saw a community or neighborhood where handsome plants growing thriftily would not command a big price. They are always too scarce. Look out and have a good lot of them ready the first time we get a summer shower. Put a good price on the best of them, or you will find you are sold out slick and clean before you know it. Now, then, work early and late to get more plants. If you haven't a horse, you can make quite a start by digging up your ground with a fork or spading-fork. But you will need a horse sooner or later. I would not think of spading any thing unless it is plant-beds under glass, or beds that are, say, six feet wide and two or three rods long. Make your calculations to move your soil by horse-power. A great deal has been said about the character of the soil to begin with. My friend, with plenty of manure and plenty of water you can make your garden anywhere. A nice sandy loam is a great advantage, but you need not be troubled if you do not get it. I do not believe that there is a reader of GLEANINGS who has a worse clayey ground to start with than we had. If there is a sandbank, or sand of any kind, within half a mile, it will pay you to cart it on to your poor clayey ground. Then hunt up a peat swamp, and get lots of peat to go with the sand. If you can not do any better, you can afford to draw peat a couple of miles. With plenty of stable manure, however, you can get along without any of these. Before you commence doing any thing, however, have your ground *underdrained* and “*overdrained*.” For the plant-beds on the most expensive ground I would have tile drains every 15 or 20 feet. Where you work the ground by the acre, a drain every 20 or 30 feet will do. Put them down at least two feet and a half below the surface. Now go for the manure. Buy it as cheap as you can. If you can not get it cheap, get it any way. We give a dollar a load for nice old fine manure, and I have seen loads that I would give a dollar and a half for, without any hesitation. Put on the ground as much as you can plow in. After it is turned under, work the ground up fine, and then harrow in a lot more of fine manure. If your ground is clayey, as I have been speaking of, so that when it is plowed it turns over in great big lumps (some of them almost as large as a cooking-stove), do not be discour-

aged, even then. Let the lumps lie and dry until they can be cut up with the harrow and roller. If they will not work up when dry, wait until a summer shower moistens the surface. Then get as much fine dirt as you can on the surface; and when there comes another rain, watch for the golden opportunity—that is, when the lumps are just right to pulverize, and go at them again. Fine dirt is the key to success. I copy the following from a very instructive home-made catalogue, coming from our good friend M. S. Benedict, of Crete, Neb. If you haven't his catalogue, send him a postal card.

The steel rake is a most important factor in garden cultivation in prairie countries. With it a few inches of perfect mulch can be made to cover the surface of the garden or field. The moisture arising from beneath the surface can not get through this covering of finely pulverized soil; neither can the scorching rays of the sun penetrate to the roots of the growing plants. The market gardeners and farmers of the West can not have better advice given them than to depend on the steel rake to prepare the soil for the crop, and to follow up planting with repeated rakings till the plants are large enough for wheel-hoes and horse-cultivators.

Perhaps you say *your* ground can not be made fine enough to be worked in that way. Yes, it can, and I am going to tell you how to do it in the next issue.

Just as soon as you get a garden started, start a compost-heap. This needs to be close by the wagon-road, and at the same time as near the center of the garden as possible. It should also be near the kitchen. Draw on four or five loads of manure. Any thing you can get will do. Make a dish-shaped cavity in the top of the heap, and then beg and borrow all the dish-water and slops you can find. Relieve the women of a part of their drudgery by taking it right out of their hands before they have time to let it stand around; then put into this cavity all the rubbish and trash you can gather up. Teach the chickens to go there and help themselves. They will very soon learn to make daily (and hourly) pilgrimages to this cavity, and will carefully sort it over and scratch it over, taking out what they like. If it should ever get to smelling bad, fork it over. Now, before there comes a bit of rain, be sure you have a shallow trench clear around the outside of this heap, and on the lowest side dig a cavity of sufficient size to hold a good-sized barrel of liquid manure. When it rains, watch carefully that this cavity never runs over. Saturday morning ours was full and ready to run over, with dark liquid manure, almost like dark green ink. While it was raining, one of the boys put on a rubber coat, and with a watering-pot gave every plant-bed a good drenching with this black manure juice. It rained a little all day Sunday; and this morning, Apr. 28, our cavity was full again; and, oh! you ought to see how the plants have just jumped where the manure juice was put. Phosphates and even guano are nowhere compared with it; and yet this manure juice is allowed to run away on thousands of farms! Why, the very rubbish that accumulates around the back yards would make the ground rich if composted in a way such as I have described. All the refuse from the kitchen—odds

and ends from the bench where your plants are packed, rubbish from the wash-bench where the stuff is prepared for the wagon, and every thing of that sort, are quickly and profitably utilized in this compost-heap. But, mind you, no matter how hard it rains, you must not let the cavity get full and run over. After you see what it will do for your plants you will very likely begin to regard it as precious—every drop of it—just as I do. It is better to put it on during a rain or shower, and then it will not make the ground bake, neither will it soil the delicate leaves, because the rain quickly washes it off.

Our stenographer was just telling that, after the great cyclone of April 8, which plowed a furrow through this county, he started off on foot across the fields to see the destruction and take some photographic views of it. At one place, about three miles from here, before he got to the devastated district, he says he wondered why the water at the side of the road was suddenly as dark as molasses. Following up the little streams he noticed that they started from a barn about 25 rods from the road, where large heaps of barnyard compost were piled up, and had been piled regularly for years, and there the very life-blood of the farm was oozing out. So strongly was the ground impregnated with this fertility that nearly all signs of vegetable life were absent. He says he leaned over the fence in mute astonishment, and wondered why some men will allow a thing to go to waste when "A. I. is paying a decent fortune to buy it." A still more aggravated case was to be seen nearly opposite this, and the streams containing the wasted fertility of the farms were, in fact, mingling as they made their way to the river below.

A TOMATO TEST OF 1889; TIME OF RIPENING; KEEPING QUALITIES AND GENERAL REMARKS.

The following comes on a printed slip from V. H. Hallock & Son, of Queens, N. Y. The above firm has given the Ignatum perhaps more attention than any other seedsmen, and they give a beautiful colored plate of it in the fore part of their catalogue. When I saw it I had a great desire to give it to the readers of GLEANINGS; but it could not very well be managed without great expense. The following test agrees very nearly with our own experience—that is, in all the kinds we have tried:

RED VARIETIES.

IGNOTUM.—Ripe in 118 days from planting. Fruit kept in good condition, after being picked, 18 days. It is solid, meaty; cooks thick, not watery; of beautiful carmine red, and very attractive to the eye; the largest crop of any tested; many weigh 17 ounces each; flavor of the best—a mild sub-acid, very desirable for table use. It bears the longest of all—until killed by frost. Oct. 12th the fruit was yet good size.

PRELUDE.—Ripe in 122 days after planting. Kept 12 days. Fruit small, prolific; quality good; bears heavy and long.

STATION TREK.—Ripe in 116 days—the earliest. Kept 16 days. Medium size, good flavor, heavy cropper, but does not ripen as fast as some others.

VOLUNTEER.—Ripe in 125 days. Kept 19 days. Large cropper; firm, bright red, sound fruit of excellent quality; bears a long time.

NEW JERSEY.—Ripe in 126 days after planting. Kept 6 days. Good size, solid, and good quality; cracks but little in rain.

MATCHLESS.—Ripe in 128 days. Kept 19 days. Bright red, solid, good quality; large crop, stood rain well.

LIVINGSTON'S FAVORITE.—Ripe in 128 days. Kept 8 days. Fine, large, smooth; good, continuous bearer.

LORILLARD.—Ripe in 128 days. Kept 15 days. Medium size, good quality, smooth, solid; bears a long time.

PARAGON.—Ripe in 131 days. Kept 9 days. Good quality, heavy crop, and long in bearing.

PURPLE VARIETIES.

TURNER'S HYBRID (Mikado).—Ripe in 130 days. Kept 5 days. Large to very large; some wrinkled; large crop, ripen in a short season; can't stand rain.

ACME.—Ripe in 128 days. Kept 5 days. Medium size, smooth; good crop, solid, good.

CLIMAX.—Ripe in 128 days. Kept 7 days, longest of any purple. Good bearer, smooth, solid; cracks in rain.

YELLOW VARIETIES.

GOLDEN TROPHY.—Ripe in 128 days. Kept 5 days. Best of the yellow varieties.

GOLDEN QUEEN.—Ripe in 124 days. Kept 5 days. Good bearer, nice, handsome looking.

While no one test is ever just right or final, this is certainly given without favor or bias, and just as they proved themselves during the past most unfavorable season.

Please note the vast difference in keeping qualities between the red and purple varieties, the former proving far superior in this respect.

Please note above, that the Ignotum is the earliest with one exception, and that is only two days earlier. Burpee's Matchless I should put next to the Ignotum, and some of the friends place it ahead. It is very much like the Ignotum. All things considered, we believe our former verdict pretty near the truth—that there is no better tomato in the world than the Ignotum.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 1, 1890.

Blessed are the pure in heart, for they shall see God.—MATT. 5: 8.

We have at this date 9841 subscribers.

THE hand that rocks the cradle is the hand that moves the world.

DEATH OF THE INTRODUCER OF THE CHAPMAN HONEY-PLANT.

We have received the following notice from the friends of Mr. Chapman:

Died at his home in Versailles, Catt. Co., N. Y., April 8th, 1890, Capt. H. Chapman, aged 80 years. Mr. Chapman has been widely known as a horticulturist, but in later years he has given much of his time to the culture of bees, and was the first to introduce to the public the celebrated Chapman honey-plant. He was an early pioneer in the town where he has lived for half a century, and his loss will be deeply felt, for he was a man of sterling integrity.

I shall always remember my pleasant visit at the home of our good friend Chapman. While he was not doing very much then in the line of market-gardening, his tools and facilities for the work convinced us all that he had been one of the moving spirits in this line of work. He was quite an enthusiast, also, with bees, especially after he took so much pains to develop the plant that bears his name. Probably no other plant has been cultivated exclusively for the honey it bears, to the same extent as this one on Mr. Chapman's own grounds.

STARTING OUT WITH ODD-SIZED FRAMES, HIVES, SECTIONS, ETC.

WITH our present rush of business and great number of orders on hand for regular-sized goods, we must decline for the present making any thing odd-sized. While we are sorry to do this, we are at the same time glad to give a wholesome lesson to

those of our friends who are so stubborn and contrary as to refuse to fall into line and use such bee-supplies as other people do. If you start out with the fixed purpose of making your own supplies, you may get along very well to a certain extent; but sooner or later there will come a time when you will want to exchange, swap, buy, or sell, and then you are not only in a bad predicament, but you inflict damage and injury on those with whom you have deal. Now, we have expensive automatic machinery, arranged to make work of a certain size. The machine is buzzing away day after day on regular goods, doing the work with accuracy and beauty. When we are behind on orders, as we are at present, to have some one send in an order requiring that this complicated and expensive machine be pulled to pieces, and changed for something else, while others are waiting for regular goods, really seems preposterous. Every time the machine is changed there is a liability of inaccuracy in the adjustment when put back to its proper work; and with our factory of thirty or forty new hands that have been crowded into the service, the chances for mistakes are ever so much greater. These new hands could run the machine right along on its regular legitimate work; but to stop it and adapt it to something else that no one else ever heard of, requires not only an old hand, but an expensive one. After the odd-sized stuff is made up, boxed up, and sent off, it is not uncommon to hear that the things were not made as wanted, or perhaps not as ordered. A great part of the time these things of odd dimensions are ordered by somebody who does not know even his A B C's in bee culture. In the present state of progress, business should follow in beaten paths and regular channels. In the fall of the year, when we have not much to do, we are quite willing to make rat-traps and perpetual motion, if any of you want to foot the bill; but we can not stop our regular work to attend to such things now.

SAD NEWS FROM G. B. LEWIS & CO.

Mr. Root:—We beg leave to inform you that our factory and office were burned to the ground Saturday last at about 2 A. M. The cause of the fire is unknown. We were running at the time. We have already rented another factory, and will be prepared to fill orders for sections very soon. We would advise you, however, not to wait for us to supply you. We were out of 1 1516, and had to make them. We had them about ready to ship, but were yet in shop, and all burned. We shall commence rebuilding at once, and will build about three times our former capacity. G. B. Lewis & Co.
Watertown, Wis., Apr. 21.

The above is sad in a good many ways. As our friends will gain from the above, a carload of sections was finished, ready to ship us, and they had our order for still another carload. We sincerely hope that they may be able to start up again with very little delay, not only because it will throw a great mass of orders upon us when we are already overburdened, but because of the disappointment it will probably cause to many of the bee-friends in getting their supplies—another illustration of the importance of sending your orders early, and having your stuff ready before it is time to use it. We presume likely that our Wisconsin friends were not rigged as we are with automatic sprinklers; but wouldn't their loss and trouble at the present crisis have paid for the sprinkling attachments a good many times over? Surely water should be cheap and handy in a place named Watertown. I hope our friends will excuse this poor pun, for we sympathize with them most fully in their mishap. Perhaps their well-known prompt habits will enable

them to hold their trade, and we are sure they will very soon be in better shape than ever before to furnish the world with bee-hives and section boxes.

LATER.

We wrote you that you might take out our advertisement; but we now say, leave it in; and if you will kindly say, when you notice our loss, that we have leased another place, and, with assistance of outside shops, will, we think be able to fill our orders in a few days, we shall feel obliged. We think we shall be able to fill your orders also, but we do not ask you to wait; and, in fact, we want all customers who have orders with us to order them canceled if they feel they will be delayed too long.

G. B. LEWIS & CO.

Watertown, Wis., April 23.

In addition to the above we earnestly entreat the customers of G. B. Lewis & Co. not to withdraw their orders, but to help our friends out of their trouble by letting them fill them as soon as they can. Should you ask for your money back, and then send it to us with our present mass of orders before us, it will probably delay you longer than to let them remain where they are. We are very glad to see our friends getting on their feet again so rapidly after their great loss.

The following comes from the Falconer Manufacturing Co.:

MR. ROOT:—We are very sorry to hear of the loss of Messrs. G. B. Lewis & Co., and your letter was the first intimation that we had of their misfortune. We are likewise sorry that the sections they were loading for you were burned also. We notice that you have guarded against a similar loss by the introduction of sprinklers. We placed them in our factory in 1888, and hope, should there be a fire in either your own or our factory, the sprinklers will do all we should expect of them. We note that you are very much crowded with orders, and we are in the same situation, though our facilities are greater, and we are better prepared for a large trade, than ever before.

THE W. T. FALCONER MFG. CO.

Jamestown, N. Y., April 25.

We are glad to notice the friendly feeling that seems to exist among our great supply establishments. Even though we are rivals in business, we have been for some time helping each other, and we all feel sorrow and sympathy for friend Lewis' loss by fire. We are glad to know that the Falconer Manufacturing Co. put up the sprinklers, even a couple of years before we did. I hope the bee-keepers of our land will exercise forbearance under the circumstances; namely, that we are all pretty well overloaded with orders, and one of us has been crippled by fire.

THE A B C OF BEE CULTURE AGAIN REVISED.

The 42d thousand of our A B C of Bee Culture is just completed. As usual with former editions, it has been thoroughly revised and likewise enlarged. The present edition numbers 420 pages, size of this, and double column. A picture-gallery of apiaries and honey-exhibits, comprising 16 pages, has been added, and just follows the biographies of noted bee-keepers. The engravings of both the biographical and picture-gallery departments comprise our latest and best, many of them full page. An appendix of some 6 pages has been added by Dr. Miller, and the same are reproduced elsewhere in this issue for the benefit of our readers who may have our old edition. It was found, after the book was nearly completed, that, during the past few months, improvements had come up, and Dr. Miller was accordingly asked to write them up and add such other suggestions as he might see fit to make from the latest revision. The subjects in the body of the book, that have received special revision, are Comb Honey; Feeding (the latter being entirely re-written); Extracted Honey; Hive-making, with a description of how to make the new Dove-tailed hive; Queen-rearing, with a brief summary of Doolittle's method of procuring and completing cells in full colonies with a laying queen; Swarming; Veils, and Wintering. The last subject was

entirely re-written, so that it is the very latest in regard to the indoor and outdoor methods. The whole subject is well illustrated.

The A B C book sells at the rate of about 5000 every 14 or 15 months, and it was only by getting a new press that we were able to get out the present edition so that our customers would not have to wait. We aim to make each edition of the A B C up to the times—as much so as if the whole book had been written during the year of publication. As it is all kept in standing type, each subject can be revised in accordance with the latest developments. As soon as we can do so practically, we propose to drop the paper-cover edition. A great many of our customers, after receiving the latter, are a little surprised and disappointed that they should get so nice a book in such cheap binding. Although the A B C in cloth costs us considerably more than it did when we first sold it for \$1.25, we have decided to keep the price the same, and sell only one kind of binding—cloth. When sent with other goods, so as to save postage, the price will be only \$1.10, as formerly.

SPECIAL NOTICES.

12-INCH FDN. MILL IN CANADA FOR SALE.

We have at Millbrook, Ont., a 12-inch fdn. mill that is practically as good as when new, and has made only about 300 lbs. of fdn. It is over the lines, and 30 per cent duty paid. If any of our Canadian friends want it they may have it for \$30.00. Better send for samples made on the mill, so that you may know just what you are getting.

THE BRITISH BEE JOURNAL AT A LOW PRICE.

The price given in our list is \$2.40, postage included; as we have, however, about a dozen copies coming by way of exchange, more than we have subscribers for, we will furnish it until this edition is exhausted, at just half price—\$1.20—for the year 1890. Of course, you will receive the back numbers from January. Sample copies furnished before subscribing, if you wish.

METAL-CORNERED FRAMES.

A good many have inquired if we can furnish metal corners for the wide and thick top brood-frames. We answer, no. Our metal corners are made only for frames $\frac{3}{4}$ inch wide, and from $\frac{1}{4}$ to $\frac{1}{2}$ in. thick. The wire reversing corner will fit only on frames $\frac{1}{2}$ in. wide. There isn't enough advantage in either kind of corners to justify the expensive machinery required to make them any other size than those we already furnish.

PRICE OF JAPANESE BUCKWHEAT.

We this date withdraw the low price at which we have been selling Japanese buckwheat for several months, and quote, until further notice, those published on page 26 of catalogue, which are as follows: 1 lb., 5 cts.; by mail, 15 cts.; 1 peck, 40 cts.; $\frac{1}{2}$ bushel, 75 cts.; 1 bushel, \$1.40; 2 bushels, \$2.50; 10 bushels or more, \$1.10 per bushel, bag included in every case. We have already disposed of several hundred bushels, and still have a good stock of choice seed.

HONEY-QUEENS.

Last season the progeny of one of our queens was so very much ahead of all other bees in our apiary, in point of honey gathering, that we sold daughters of the queen for a half more than our regular catalogue price. As the queen was an old one, we sent her south last fall to our Southern breeder, and now he reports having a nice lot of honey-queens. These will be sold, as long as they last, for a half more than our regular catalogue prices. Un-
tested, in May, \$2.25; tested, \$4.50; select tested, \$6.75. We are aware that these prices are rather high; but it is early in the season yet, and the queens are extra.

Where Do You Live?

If you will let me know I will send you our circular for 1890, which will tell you all about the **Hive we are selling for 55 cts.**; and if you want 25 we can let you have them for 49 cts. Also 100 brood-frames, \$1.00.

WM. H. BRIGHT,
Mazepa, Minn.

89d In responding to this advertisement mention GLEANINGS.

LOOK HERE!

Italians and Albinos, or their Cross.

These bees are as fine as can be found in the country, and will be sold as follows:

	MAY.	JUNE.	JULY.	AUG.	TO NOV.
Untested, each. . .	\$ 1.25	\$1.00	\$1.00	\$.75	\$.75
" 1/2 doz.	5.50	5.50	4.50	4.00	4.00
" 1 doz.	10.00	9.50	9.00	8.00	8.00
Tested, each	2.50	2.50	2.00	1.50	1.50
" two	4.50	4.50	3.75	2.75	2.75
Select tested	3.00	3.00	2.50	2.00	2.00

I have taken C. S. Kildow in partnership, and we will fill all orders promptly. Send for catalogue.

A. L. KILDOW & BRO.,
Sheffield, Ill.

7-9-11-13-15-17d In responding to this advertisement mention GLEANINGS.

CHOICE EGGS from prize winners; 9 varieties. Send for catalogue. **M. HURD,** Marshall, Mich. 8-9d

MY 22D ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. **H. H. BROWN,** Light Street, Col. Co., Pa.

In responding to this advertisement mention GLEANINGS.

Albino and Italian Queens and Bees

For 1890. I am prepared to furnish a large quantity of either variety; but if you should ask for the best, The reply, Albino, I! if you should ask why, I will refer you to the many that cry, "Albino for I." In my circular you can see why. Address

S. VALENTINE, Hagerstown,
Washington Co., Md.

7-9d In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Barnes' Foot-Power Machinery.



Read what **J. I. PARENT**, of **CHARLTON, N. Y.**, says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 money-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will."

Catalogue and Price List Free. Address **W. F. & JOHN BARNES,** 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. **A. I. ROOT.**
23tfid

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

JNO. VANDERVORT Laceyville, Pa.

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies and Strawberry Plants.** Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees and Queens** for sale; \$1.00 queens a specialty. Address **F. W. LAMM,** 24-23db (Box 106.) **Somerville, Butler Co., Ohio.**

In responding to this advertisement mention GLEANINGS.

Tested Italian Queens, \$1

With nuclei, containing two or more pounds of bees on one, two, three, or four frames, at 75c per pound. Untested queens, 75c each. See March GLEANINGS.

LUTHER W. GRAY,
Orlando, Fla.

ALSIKE CLOVER SEED.

Retail and wholesale. Ask for price list.

7-8-9d **E. S. HILDEMAN,**
Ashippun, Dodge Co., Wis.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives **LOW SPECIAL FREIGHT RATES** to many Southern points, especially to points in **TEXAS.**

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.

THE BEST THING OUT FOR GETTING BEES OUT OF SUPERS.

The Dibbern Bee-Escape.

Get a pattern, and be sure you have it *just right.* Now perfect. Tinned wire cloth, soldered on tin. Instantly removable. Sample cone by mail, 35c. Complete board, express, 50c.

5-15d **C. H. DIBBERN,** Milan, Ill.

In responding to this advertisement mention GLEANINGS.

ENGINES, SIMPLE AND COMPOUND.

We have been having built, specially for bee-hive work, a superior grade of engines. They are heavier, and better built, steel and wrought iron being used in several of its parts where cast iron is ordinarily used on ordinary trade engines. Our prices are as low as can be obtained on engines of an inferior grade. Prices: Simple engines, without boiler, 2½-horse-power, \$75.00; 5-horse-power, \$100; 7½-horse-power, \$125; 10-horse-power, \$150. Compound engines, without boiler, 2-horse-power, \$100; 4-horse-power, \$133; 6-horse-power, \$167; 8-horse power, \$200. The above prices include lubricators, throttle-valves, and governor belt. In our compound engines the steam is used over again in a larger cylinder, thus economizing fuel, and these in small powers you will not be likely to get elsewhere. We have tested these engines thoroughly, and they give us good satisfaction. On engines and boilers combined, write for prices. For further particulars write us.

A. I. ROOT, Medina, O.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

AFTER 10 YEARS,

Owing to fine workmanship and first-class materials used in the manufacture of our goods, our business has reached that point where, without boasting, we can justly claim to be the largest manufacturers in the country of all kinds of

→ BEE - KEEPERS' SUPPLIES. ←

The reason of our constantly increasing trade, notwithstanding the great competition, is, that when we get a customer we keep him, as we furnish superior goods at lowest prices.

We wish to also state, that we are sole manufacturers of the

ARTHUR C. MILLER AUTOMATIC FOUNDATION FASTENER.

(See description in March 15th GLEANINGS.)

If You Need Any BEE-HIVES, SECTIONS, FOUNDATION, Etc.,

Send for catalogue and price list. Address

The W. T. FALCONER MFG. CO., Jamestown, N. Y.

☞ In responding to this advertisement mention GLEANINGS.

REMOVED, from Coburg to RED OAK, IOWA, my entire factory for

BEE SUPPLIES.

Wholesale and Retail.

40-page illustrated catalogue FREE to all. 4tfdb Address **E. KRETCHMER, Red Oak, Iowa.**

☞ In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS,

BRED FROM AMBROZIO AND BENTON
Imported 1889 Queens.

Circular of Supplies | **J. B. Kline's Apiary,**
and Queens. 7-13d **Topeka, Kas.**

☞ In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines

Iowa, at Root's Prices.

The largest supply business

in the West. Established 1885

Dovetailed Hives, Sections,

Foundations, Extractors, Smokers, Veils,

Crates, Feeders, Clover

Seeds, etc. Imported

Italian Queens. Queens and

Bees. Sample copy of our

Bee Journal, "The West-

ern Bee-keeper," and Latest

Catalogue mailed Free to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

☞ In responding to this advertisement mention GLEANINGS.

J. C. SAYLES,

HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every
Description. Catalogue Free to All.

3tfdb Send Your Address.

☞ In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING! L. Brahma, P. Rock, R. C. B.
GET Leghorn, P. Duck, \$1.25 per nest; 2 nests, \$2.
THE White P. Rock, W. C. B. Polish, \$1.50 per nest.
BEST Circular free. S. P. YODER, East Lewistown, Ohio.

Established 1878.

SMITH & SMITH,

Wholesale and Retail Manufacturers of

BEE - KEEPERS' SUPPLIES.

KENTON, OHIO.

Price List Free. Mention Gleanings.

GUARANTEED FOUNDATION

For Sale Cheap. Write for prices.

E. R. MILLER,

Garden City, Cass Co, Mo.

7-9d

IMPORTED QUEENS.

In May and June, each, - - - - - \$2 00

In July and August, each, - - - - - 1 80

In September and October, each, - - - - - 1 40

Money must be sent in advance. No guarantee on shipments by mail. Queens sent by express (8 at least), which die in transit, will be replaced if returned in a letter.

1-11d **CHAS. BIANCONCINI, Bologna, Italy.**

1884. TAR-HEEL APIARIES. 1889.

After May 1st,
Warranted queens
\$1; prior to May,
\$1.50; Virgin qu.,
50c; Bees, \$1 per
lb.; Nuclei, 75c per
L. frame. Thin
foundation, 50c per
lb. Selected Exhib-

American Albino Italian iting and Breeding Worker Bee.
Queens, \$5. Sample of 4 and 5 Banded Bees, and Red
Drones, 10c. Finest in the U. S. Price list free.

SMALL ENGLISH YORKSHIRE PIGS!
"Duke of Goldsboro, No. 861," Duchess of Golds-
boro, No. 1523, "Lady Wayne, No. 1529," heads my
herd-pigs; \$6 each; \$11 per pair. 6-7-9d

ABBOTT L. SWINSON, Goldsboro, N. C.

☞ In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked
the quickest of any Foundation made.

J. VAN DEUSEN & SONS,

Sole Manufacturers, 5tfdb

Sprout Brook, Montgomery Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.

CARNIOLANS.

We make Carniolan bees and queens a specialty.
See our prices before placing your orders. Our
stock of Carniolans can not be excelled by any. Des-
criptive circular and price list for 1890 now ready.
Write for it. Address **F. A. LOCKHART & CO.,**
5tfdb (Formerly of Andrews & Lockhart.)
Pattens Mills, Wash. Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.